

# THE PERFECT VSE OF SILK-WORMES, *and their benefit.*

With the exact planting, and artificiall handling of  
Mulberrie trees whereby to nourish them, and the fi-  
gures to know how to feede the Wormes, and  
to winde off the Silke.

*And the fit maner to prepare the barke of the white Mulberrie to  
make fine linnen and other workes thereof.*

Done out of the French originall of *D'Olivier de Serres* Lord  
of *Pradel* into English, by *Nicholas Gesse* Esquier.

With an annexed discourse of his owne, of the meanes and  
sufficiencie of *England* for to haue abundance of fine silke by feeding  
of Silke-wormes within the same; as by apparent proofes by  
him made and continued appeareth. For the generall vse  
and vniuersall benefit of all those his Countrey  
men which embrace them.

Neuer the like yet here discovered by any.

*Au despit d'enuie.*

---

AT LONDON

Imprinted by *Felix Kyngston*, and are to be sold by *Richard Sergier*  
and *Christopher Purset*, with the assignment of  
*William Stallenge*. 1607.

---

*Cum Privilegio.*

*Cro. Lane*

632



# THE PERFECT USE OF SILK-WORMS



*Jos: Banks*



AT LONDON

Printed by T. Kneass and J. G. Smith, at the Press of the British Museum, 1807.

(The Trustees)

TO THE MOST  
HIGH AND MIGHTIE  
PRINCE JAMES, BY THE

Grace of God, King of Great Britaine, France  
and Ireland, Defender of the  
*Faith, &c.*



Y desire to aunswere (*most dread So-  
ueraigne*) the care and studie of my  
parents, so to breed mee, as that I  
might bee made fit for some ser-  
uiceable imployment in the Com-  
mon-wealth, and the remembrance  
of that matter, whereunto mine earthly part must re-  
turne, being nothing else but food for wormes, hath  
these 7. yeeres entertained some part of my life, with  
an earnest or rather burning desire, not only to learn  
and find out the readiest and assuredst way, how to  
reare vp, nourish, & feed Silk-worms, y<sup>e</sup> most admira-  
ble & beautifullest cloathing creatures of this world:  
but also the exactest & best means to preferue and su-  
steine the, with no lesse affectiō to make good & pro-  
fitable vse of both. Wherunto hauing in some small  
measure attained, am willing for the publike benefit  
of so many of my countrey-men, as shall as thankfully  
embrace it, as I louingly & freely offer it, to frame my  
labors as motiues & means for the: to draw frō their  
proper lāds the inestimable treasure of Silke (there til



now inclosed & locked vp,) euer since the first *Chaos*.  
And to the end, that these mine endeauours might  
purchase the better credit & allowace with your *Ma-  
iestie*: haue Englished a most worthy & select treatise  
of this subiect, writte in French by *D'oliuier de Serres*  
*L. of Pradel*, with an annexed discourse of my owne  
cōtinued proofes in *England*; & the sufficiency ther-  
of, for the yeelding of abundant store of pure Silke.  
Wishing that after this my publishing of the, y thing  
it self may fructify & encrease in such ample measure  
and proportiō here, as it did there, whē mine Author  
had once brought his to view. Which vndoubtedly  
wil be done, if your *Hignes* wil be graciously pleased  
to giue life & strēgth to this my slēder & weake first-  
borne Impe, that thereby it may grow & spread like  
the flourishing Cedar-tree of *Libanus*, to the perpe-  
tual, & vniuersall good of all that shall imitate mine  
example: & the granting therof likewise by your *Ma-  
iestie*, wil not only more earnestly stir the therin; but  
also incourage & egge me on to perfect this work by  
longer & more continued practise & experience; (if  
perhaps my through want of further knowledge) of  
the natures of these excellent creatures, haue left any  
part therof defectiue or vnpolished. All I aime at is to  
do your *Hignes*, & my Countrey seruice, wherein I  
will perpetually striue with vnresistable perseuerāce  
to mine vttermost, & will euer pray to God for your  
*Maiesties* long and most happie raigne ouer all your  
Kingdomes and Dominions.

*Your Maiesties most loyall and dutifull subiect,  
borne and bound to do you seruice:*

NICH. GEFFR,



# TO MASTER NICHOLAS GEFTE.

**A**s thou deare friend with thy industrious hand  
Reacheſt this rich inualluable Clue;  
So once Columbus offred to this land  
That from which Spaine her pow-hie courage drue.

And had not ſhe pronok'd by his deſignes,  
Traueld to find what hidden was before,  
Ne're had her Argo's from the Indian mines  
Powr'd their full panches, on th' Iberian ſhore.

From ſmall beginnings how braue noble things  
Haue gathered vigor and themſelues haue rear'd  
To be the ſtrength and maintenance of Kings  
That at the firſt but friuolous appear'd:

So may thy Silk-wormes happily increaſe  
From ſea to ſea to propagate their ſeed  
That plant ſtill, nourish'd by our glorious peace  
Whoſe leaſe alone, the labouring Worme doth feed.

And may thy fame perpetually aduance  
Rich when by thee, thy countrey ſhall be made



Naples, Granada, Portugale, and France,  
All to sit idle, wondering at our trade.

The tree acquainting with the Brittish soyle  
And the true vse vnto our people taught  
Shall trebble ten times recompence the toile  
(From forraine parts) of him it hither brought,

In spight of them would rob thee of thy due,  
Yet not deprive vs of thy noble skill,  
Still let faire vertue to her selfe be true,  
Although the times ingratefull be and ill.

MICHAEL DRAYTON.

Geffe, my eldest friend.

**N**Ever was yet the subject in this land  
 H'as brought to light, like hope as thou hast done,  
 Nor set his braines to worke; nor mou'd his hand  
 More purposely, then what thou hast begun.  
 Whilst greater heads were poring upon toyes  
 Thine hath been fraught this Iland to aduance  
 With studious care, and intermixt annoyes  
 And times expence; (full seuen yeeres persequance)  
 Hath made vs free-men, of thy rich found trade,  
 And freely hast imparted vnto all;  
 The arte, skill, meanes, and way hast open laid  
 For to enrich the great ones and the small.  
 Spaine shall hence forward keep her silks at home,  
 And Italy disperse hers where she may;  
 The Merchant shall not need so farre to rome,  
 Since thou hast shewen a short and cheaper way  
 By silly wormes, which euer heretofore  
 The use to keep with vs hath bin unknowne,  
 To draw that great abundant fleece of store  
 From them, (by thy discovery amply shewen)  
 The silken fleece to England thou hast brought  
 There to endure till Doomes day cut her clude,  
 And when thy bones, the wormes haue eate to naught,  
 Yet shall the wormes thy fame still fresh reue,  
 And ere thy name, thy house, thy stocke, thy line,  
 Be highly honored by this great designe.

GEO: CARR.



TO HIS OWNE, WORSHIP  
MASTER GEESE.

**L** Et me (of those so many of our Cline,  
Who stand to thee (sweet friend) in honor bound,  
For thy deare paines confer'd vpon the time,  
Who hast for vs, fame, pleasure, profit, found:  
Render thee thanks, that cannot speake thy praise,  
Wishing all condigne honor to thy daies.

Henceforth the greedy prison shall not eate  
Poore wretches, wofull mappes of misery,  
Since in thy worke all may some liuing get,  
By vse of much, or little industrie,  
Wherein the finest wittes their power may straine,  
The grosser, exercise their bodies paine.

Our populous land is free from forraigne broile,  
These iron times but little busines giue,  
Yet now the discontent his head may toyle,  
And learne a quiet vertuous life to liue.  
A blessed medicine faire Imployment is,  
Curing sicke minds that else would do amisse.

Amongst those lands which sing the memory  
Of their deare Children, who with pious care  
Haue them ennobled, by th utility  
Of Artes, that long vnto them hidden were:  
Faire England boast thy birth in happy houre,  
Who to her garland adst so rich a flower.

ROBERT GOODWIN.

# THE PERFECT VSE OF SILKE WORMES AND THEIR BENEFIT.

**I**f the Silke-worme had been  
knowne by the auncient Au-  
thors and writers of Agricul-  
ture and husbandry, we need  
not doubt, but the praise of so  
rich & worthy a creature had  
been sung by them, as they  
haue done that of Beeh: but  
by such default, it hath remained without name in  
many ages. *Virgil* discourses, as by passing, of the rich  
fleece that the Forrests of Ethiopia, & Seres brought  
forth, without mentioning the quality or means to  
gather it. See in these words

*Quid memora Ethiopam molli orientia lana?*

*Virg. Georg. II.*

*Velleraq; ut folijs depacta tenuia Seres.*

From whence some, as *Solin* and *Sennius*, haue  
thought this to be Silke, and that to proceed directly  
of the trees. Such hath been the first notice of the  
Silke given in Italie, which was in the raigne of the  
Emperour *Alexander Augustus*; confirmed by *Plinie*

The first no-  
tice of silke at  
Rome.



more then seventy yeeres after, (for hee liued in the time of *Vespasian*) he therto addeth, that in the Ile of *Coos*, there growe, Cypres trees, Turpentine trees, Ashes, and Oks, of the leaues of which trees, fallen to the ground in maturity, through humiditie of the same, breede wormes bringing forth silke. That in *Assyria* the Silke-worme called by the Greekes and Latines, *Dambyx*, makes his nest vpon the earth, which he fastens to the stones, where it hardneth very much, remaining there conserued all the yeere, that makes webs after the fashion of Spiders. *Aristotle* also saith, that in the Ile of *Coos*, *Pamphyllia* daughter of *Latous*, was the first inuentris of spinning and weauing silke, by the which intricate and folded-vp discourses, compared to the practick of these times, appeareth how far off the ancients were from the true knowledge of the Silke-worme, having not knowne from whence they came, nor how they are nourished, so by their silence they witnesse, in holding their peace, of the egges, and the leaues of the *Mulberies* for their food.

*Vopiscus* witnesseth, that in the time of the Emperour *Aurelian* (two hundred yeeres after *Vespasian* and more) silke was sold for the weight of gold, for which dearnes, but especially for modesty, he would neuer weare robe all of silke, but mingled with other matter; although *Helioabalus* his predecessor was not so sparing, as saith *Lampridius*. Like modestie is noted of King *Henry* the second, which would neuer weare silke stockings, although that in his time the vse of them was then receiued in *France*. Many others in diuers times, haue spoken of the silke, as *Solin*,

lin; *Marcelin*, and *Serinus*, which name the Silke-  
worme *Zir*, from whence comes the Latin word  
*Sericum*, that is to say, Silke, as witnesseth *Pausanias*  
in his description of *Greece*, *Martial* also makes men-  
tion of the silke by these verses:

*Nec vagatam tenni discorsat aranea sela,*

*Tam leue nec Bombyx pendulus urget opus.*

And of the work of Silke-wormes *Propertius* saith,

*Nec si qua Arabia lacet Bombyce puella.*

*Elpian* an auncient Lawyer, speaketh of the silke

in the title *De Auro & Argento Legato*, in this sort, *ve-*

*stimentorum sunt omnia lanea, lineaq; vel serica bombyci-*

*na &c.* It is a thing receiued of al, that the inhabitants

of the country of *Seres*, first of al manifested the silke,

hauing brought the seed from the Ile *Taprobane*, or

therwise *Sumatra*, situate vnder the *Aequinoctiall*, in

longitude from them of forty sixe, to forty eight de-

grees of latitude. The country of *Seres*, so called of

a citie of the Province, is that which at this day is na-

med, *Cattay* and *Cambalu*, in East Asia, adioyning on

the West to *Scythia Asiatick*; and of the South to the

Indies, gouerned by the great *Cham* of *Tartary*. At

the légth these things came to light, by two Monks,

which brought from *Sera* a citie of the country of

*Cattay* the graine of Silke-wormes to *Iustinian* to *Con-*

*stantinople*, (the raigne of which Emperour began

the yeere of Christ 526.) from whence the know-

ledge of rearing and bringing vp this creature, is di-

persed throughout all Europe. So *Procopius* hath

written after many other. From the citie of *Panormie*

in *Scitile* is come the manner to vse the silke, where

first of all it was shewed by the meanes of certaine

workmen

The begin-  
ning of the  
silke.

Where first of  
all the silke  
was wrought  
in Europ, and  
finally



worlde in this arte, brought thither prisoners by  
 Roger King of the forsaide Ile of Sicilie, in the time of  
 the Emperour *Carade*. Lastly these excellent sciences  
 haue take footing in certain Prouinces of this realm;  
 but by tract of time and distances, not all at once.  
 For as God hath accustomed to distribute his be-  
 nefits by little and little, so much the better to make  
 vs relish his graces: so the knowledge of the Mulber-  
 ry tree hath first been giuen vnto vs, after that the vse  
 of it, to the end to make prouision of food, before  
 we charge our selues with the creature.

In what time,  
 and in what  
 Prouince of  
 this kingdom.

I will not here reckon the causes and times of  
 their more forward bringing in into this Realme,  
 but in the raigne of *Charles* the 8. in the voyage that  
 this King made to the kingdome of *Naples*, the yeere  
 a thousand, foure hundred, fourescore and foure-  
 teene, some Gentlemen of his traine, hauing noted  
 the riches of the filke, at their returne home did  
 affect to prouide their houses of such commoditie.  
 Afterwardes the warres of *Italy* ending, they sent to  
*Naples*, to fetch plats of Mulberries, which they pla-  
 ced in *Prouence*, by reason of the little distance of cli-  
 mates of each countrey, making the enterprise  
 easie. Some say it was in the borders of such a pro-  
 uince, ioyned with that of *Dauphine*, where the  
 Mulberries first grew, marking also *Alan*, neere to  
*Montellimar*, which was then planted by the meanes  
 of his Lord, which accompanied the King in his voy-  
 age: As the old great white Mulberries yet at this  
 day to be seene, giue some assurance. But be it there,  
 or elsewhere, it is certaine that in diuers places of  
*Prouence*, *Languedoc*, *Dauphine*, the principalitie of  
*Orange*,

*Orange*, and about all the Countie of *Veneffaine* and the Archbishopsricke of *Auignon*, (for the great commerce that they haue with the Italians) the Mulberries and their seruice are at this present verie well knowne, there also the handling of the silke appeareth in great beautie; where continually increaseth an earnest desire to plant Mulberries, for the experimented commoditie which comes of them. In sume, there the Mulberry is held for the most assured pennie falling into the purse. At *Toures* this busines is already receiued with great profit and applause; and certaine yeeres since hath begun to manifest it selfe at *Caen* in low *Normandy*; yet vnknowne to the rest of this kingdome, through the carelesse retchlesnesse of the inhabitants, and to the great shame, almost of all these prouinces, seeing that in them the Mulberrie, and Silk-worme may liue and profit. For the affection I beare to the publike, I haue in the beginning of the yeere a thousand five hundred eightie nine caused to bee printed a particular Treatise of this foode and norture, intituled, *The gathering of the Silke*, and addrested it to those of the common Counsell of the cite of *Paris*, to the end that thereby their people might be sufficiently stirred vp, to draw from the entrailes and bowels of their landes, the rich treasure of silke therein hidden. By this meanes, bringing to light the millions of gold inclosed and locked vp: and by such riches to finish the honor of their city, with this last of her ornaments, abounding about the rest in all sorts of riches. Amongst the pleasant places of the void fields of *Paris*, I haue marked *Madril*, and *Vicenes* wood,

Silk wil come faire & good throughout al this Realme, a few places excepted.



royall mansions, and very capable to receiue and nourish three hundred thousand Mulberries, for the largenes and qualitie of their grounds, and facultie of the aire, the leaues of such trees in their times, may bee happily and profitablie employed; The appearance of which is great, to draw from thence abundance of silke, for the publike commodity, and particular profit of the citie of *Paris*, when by dressing of the silke, it shall nourish infinite numbers of people of her proper inhabitants, and poore and miserable folkes, which flocke thither from all the Prouinces of the Realme.

What places  
it desireth.

Where the Vine groweth, there also will come the silke, an apparent demonstration, sufficiently verified by reiterated experiences, in diuers countries discordant of climats. Nay going farther, where the Mulberry only liues, without speaking of the Vine, the Silk-worme will not chuse but profit; as is knowne not long since, within the citie of *Leiden* in *Holland*, in the yeers a thousand five hundred ninety three, nintie foure and ninty five; where the Noble *Duchesse* of *Ascot* caused to be nourished Silk-worms with good successe, and of the silke which came of them, was made apparell, which her gentlewomen wore, with great wonder of those which saw it, because of the coldnes of the countrie. Histories record that in the time of the auncient *Gauls*, *France* brought forth no wine: behold now at this day abundantly provided of so exquisite a drinke, by dexterity of those which haue opportunly imploied their profitable curiosity. Many beasts and strange plants, cōsent to liue amongst vs with requisite care,  
(which

(which former times held impossible) the which e-  
uery one notes almost enery where, without com-  
ming to examples. I will not heere reckon vp the  
Orenge trees, Lym on trees, Pouncitron trees, and  
other precious trees, which are nourished in all aires  
and countries, though neuer so cold, seeing that in  
such curiositie runnes out great expence.

The care of gathering the silke is not alike, the  
end of that is profit, not only particular delectation.  
For there is no heede at all to be taken for the Mul-  
berries which as in the open field, it is onely for the  
little cattle that feares the cold, which would bee  
preserued from it. And what thing is easier to do  
then that, how cold soeuer the countrie bee, seeing  
the Silk-wormes are lodged in houses, and not a-  
broad, and also in a season, not altogether cold but in  
the spring time, and part of the sommer: All the  
hindrance that can be here alleaged, is, that the ga-  
thering the silke will bee more late then in a south  
countrie: what importeth that, so one hath abun-  
dance of good and fine silke, if one reapes not in the  
north parts in May and Iune, as they doe in *Len-  
guedoc* and *Prouence*, if they doe it in Iuly and Au-  
gust: In like manner, wee want no store of good  
wine in *France*, though our vintage be not so soone  
as in hotter countries. The Mulberries haue fore-  
gone the knowledge of nourishing the Wormes, as  
I haue saide, in attending the which, many vpon  
hearsaie, were constrained in vaine to nourish Silk-  
wormes, & haue discredited such husbandry, este-  
ming this cattell can profit but in places where they  
haue been of long time naturalizde, whereby, with  
impatience



impatience haue extirped and puld vp the Mulberries as vnprofitable trees, which before, and at the first report of their worth, they had planted with great affection. But those which constantly haue attended the seasons, are proued better husbands, and abundantly prouided of Mulberry leaues, then, when the knowledge to guide and conduct this creature is knowne: an example which is marked at *Nismes*, & in many other places of *Languedoc*, seruing for instruction of those which at this day wil delight in so profitable an husbandry: the which to their contentment they shal find in these discourses, assembled the Sciēces, both to dresse the trees, and nourish the creatures: whereby they shall be deliuered from the trouble of a languishing attempt, and the hazard of ill feeding the Wormes.

Silke brought  
first into the  
Heart of Frāce  
by the King.



The King right well knowing these things, by the discourse which he commanded me to make for him on this subiect, the yeere a thousand five hundred ninety eight, resolved to haue white Mulberrie trees brought vp in all the gardens of his houses. And for this effect, in the yeere following that his Maiesty went the voyage of *Sauoy*, sēt into *Prouence*, *Languedoc*, and *Vinaces*, *Monsieur de Burdeaux*, *Baron of Colentes*, generall Surueyor of the gardens of *France*, a Lord accomplisht with all rare vertues: and by this same way the King honored mee to write vnto me, to imploy me for recovery of the foresaid plants; to which I gaue such diligence, that by the beginning of the yeere 1601, there was brought to *Paris* to the number betwene fiftene and twentie thousand. The which were planted in diuers places in

in the gardens of *Tuilleries*, where they are happily sprung vp. And his Maiestie not willing that such treasures should remaine any longer thrust together in certaine corners of his realme, but that his people should vniuersally relish them, adding to the riches of the peace, which by his meanes and the celestially fauour, all *France* most quietly enioyeth, hath ordained by the Commissioners already deputed by his Maiestie for the generall commerce, should aduise for the most easiest dispatches that might be possible, to furnish his kingdome with Mulberries, to the end to gather silke from them; and in going on to establish the handiworke. Vpon which, and following his Maiesties will, after good and mature deliberation, contracts were passed with the merchants vpon this subiect, at *Paris* the fourteenth of October and the third of December a thousand six hundredeth and two, confirmed authorised, and ratified by Letters Patents of his Maiestie, contayning the furnishing of the said Mulberries in the foure generalities of *Paris, Orleans, Toures, and Lion*. Also of a certaine quantity of seede or graine of the said trees, to be dispersed by the elections of the said Generalities. And for so much more to accelerate and aduance the said enterprize, and to make knowne and diuulge the facilitie of this worke, his Maiestie caused expressely to be builded a great house at the end of his garden of *Tuilleries* at *Paris*, furnished with all necessaries, as wel for feeding the Wormes, as for the first works of the silke: enioyning furthermore, that all the leaues that mought be found, as well of white, as black Mulberries, already planted in diuers

into Germany  
by the  
Duke of W.  
republic.



places of the said generalities, should be taken by the expertests for this deputed, and employed to the nourishing of the Wormes the said yeere, to the end to giue generall notice that the temperature of the aire, and francknesse of the soyle are more then sufficient to bring forth silke, in like or better force, lustre, and goodnesse than that which we haue accustomed to receiue with great expence, from provinces the most farthest off. All which things haue so easily sprung out through the grace of God, and the good successe of our Prince, for whom the heavens haue reserued all the most excellent inuentions of our age, that wee must no more doubt, but within short space, by the cōtinuation of his thrice excellent beginnings, *France* shall see it selfe redeemed from the value of more then foure millions of gold, that euery yeere goeth out for furniture of stufes compounded of this substance, or of the matter it selfe, to the end to worke it in this kingdome. Behold the beginning of the introduction of silke into the heart of *France*, where the example of his Maiestie hath been ioyned to his commaundements with great efficacie, for the good of his people.

Into Germany by the Duke of Wittenberge.

And as by commendable emulation, worthe Sciences neuer rest in one only place, but passe euer forwarder in the spirits of vertuous personages, it is come to passe not long since, that *Frederick* Duke of *Wittenberg*, a Prince meriting all praise, hath established in his territories, both the feeding of the Silke-wormes, and the handling of such matter. The successe whereof hath been so fortunate in the beginnings, that those haue been constrained to comelie the

the enterprife to bee profitable, which before condemned the counsell of it, builded vpon the coldnes of the countrey of *Germanie*.

But seeing that the silke comes directly from the Worme, which vomits forth all the silke; and the Worme proceeds from the graine, the which is kept ten moneths of the yeere, as a dead thing, taking life againe in his season. The worme is nourished of

The Worme  
brings forth  
Silke.

the leafe of the *Mulberrie*, the onely victuall of this creature, which living no longer then fixe, seven, or eight weekes, more or lesse, according to the countrey and constitution of the yeere (the heate shortning his life, and on the contrarie the cold lengthening it) within this little while, by the silke which he leaues vs, he paieth largely the expēce of his feeding. As the nations are fundrie which keepe him, so is he named diuersly. The *Greekes* and *Latins* haue called him *Bombyx*: and at this day in *Italy*, *Cauallieri*, and *Bacbi*; and in *Spaine*, *Glauor*: in *France*, *Vers-A-foye*; in *Languedoc*, *Prouence* and thereabouts, *Magniaux*.

What earth and what manuring the *Mulberrie* desireth, what seede of wormes is to be chosen, what lodging, and what handling the beast requireth, which comes of those, what is his bearing and vse, shall bee shewed hereafter. By which discourses, shall cleerely appeare the riches of this foode: and that the land imployed to such husbandrie, brings more mony in lesse time, than by other fruits which may bee planted on it, at least, whereof one may make any account.

Commonly, a thousand pounds of the leaues of *Mulberries* being ten hundred waight, is sufficient

An audit of  
the expence,  
and the coming in of  
this feeding.



to satisfie and feede an ounce of the seede of Silke-wormes; and the ounce of graine, makes five, or sixe pounds of silke; euery pound being worth two or three crownes, and more; wherefore ten or twelue crownes come of ten hundred waite of leaues: the which quantitie twentie, or five and twentie trees of a meane size will alwaies bring forth; yea a much lesse number wil suffice them, if they be old trees and great, as there are in many places, as neere *Anignon*, being so ample and abundant in armes and branches, that one tree will furnish with sufficient leaues to feede an ounce of seede. But because such trees so qualified are very rare, there is no certain account to be made. For the cost of the affaire, the fourth of the totall is taken: so there remaines three parts of liquid renewew, which makes seuen crownes and a halfe, or nine crownes, that twentie, or five and twentie Mulberries will bring euery yeere. I confesse that alwaies an ounce of seede doth not make five or sixe pound of silke, for sometimes it makes almost nothing, when by the infelicitie and vnluckynesse of the season the leafe being ill qualified, by vnholosome nourishment, causeth diuers maladies in the Wormes, when the pest is rise amongst this cattell; or when their stages are not made verie firme where the Wormes are lodged, falling vpon them are surely killed, or when by other accidents they die. But likewise it is a thing confessed of all those which exercise themselves to this foode, that such a yeere happens, when an ounce of seede will arise to make ten pound of silke and more: and that is then when the race of the creature, his lodging,

lodging, his foode, the time, the hand of the gouernour, doe accord and agreee for the good of this household. And who knowes not that corne, wine, fruits of trees, and cattell, of tentimes faile by tempests, drowthes, humidities, & other excesses of the yeece? And who would desist from tilling and sowing the ground, or who would stub vp his Vines and trees, or casshier the food of this little beast, for their sayling in some yeece? There is none to be found so brainlesse and ill aduised. It shall appeare hereafter that by the gouernment of this creature there can be nothing raised without curiositie, diligence, and expence: For the which things many despise this household, as fantastique, painefull, and chargeable. But they deceiue themselves, because they consider not, that for moderate hire, one shall finde people know sufficient exactly vnderstanding this art, which will vndergoe the charge of all that which depends vpon it.

And for to particularise the expences, I may say, that an hundreth or sixskore gatherers, whereof three quarters, are women, or boyes, are sufficient to gather all the leaues necessarie to feed ten ounces of the seed of the Wormes, and to bring them into the place of the cattell, the Mulberries being not farre distant from the house as is requisit. To the payment of which worke for the qualitie of the persons, ariseth not to much mony. For it is in victuals that the most is consumed. But if the feeding of the leafe-gatherers trouble you, for money only you may be supplied with their seruice by the day, or by the

Of gathering  
the leaues.



# 14 The perfect use of Silke wormes,

gathering, according to the order of many cities where such traffique is vsed.

The wages of the Gouverneur.

Touching the gouernour, his wages are commonly two, three, or foure crowns a month, besides his diet: and his charge is to gouerne the Wormes, and to hatch them from their seede euen till their silke bde made; that is to say, to render it wound vp. One only man will gouerne so many Wormes as you wil, provided hee bee assisted: the which will be done with folke of little price, seeing all sorts of persons, men and women are capable of it.

Touching the seed.

As for the seed of the Wormes, you are not to reckon vp that which they haue cost you, because they will restore you enough euery yeere in renuing the, for the conseruation of the graine. But here will lie such expence in the rancke of that made in the buying of bords and tables, for the skaffolds, as also for the making fit the lodging: these things are to be ordained for the ground-worke of this reuenuie being durable, & without consuming, at the least but very little. And although it is requisit to haue euery yeere some small quantity of new seed, to continue a good race, as shall be said, yet is there for that no more expence, seeing that of the sale of the seed, which you shall referue, you may buy of another for your purpose.

Vpon which discourses making your account, you shall find that much better cheape you shall keep the Wormes comming of ten ounces of grain, then five and twenty or thirty sheepe: for the which, yet for lesse number, you must keepe a shepheard all the

So by that you evidently see how much the expen-  
ces of one cattell differs from the other : And by  
this reckoning, which of the two makes more reue-  
nue, though that by vniuersall iudgement the yeel-  
ding of sheepe is very profitable. And doubt not,  
but that *Cato* in his answeres touching feeding, for  
to become rich, had meant it of the Silke-worme, if  
hee had had the knowledge of it. The feeding of  
Silke-wormes is likewise very commendable, be-  
cause they hinder not any worke of the fields; com-  
ming in the moneths of Aprill and May, when they  
haue no other occupation to call them from it. Gi-  
uing such backwardnes, a meane for the master ea-  
sily to find sufficient people to serue this turne: the  
which in this time hauing no other busines, are very  
easie to be had, to get their living, and some piece of  
money, to come forth out of the backe season of the  
yeere; whereby the nourishing of this cattell is made  
more easie, by them only contemned, which know  
not how much the ell is worth : But for the rest, the  
licentiousnesse of the coyne, that they drawe from it  
(without losse of their other husbandrie, but as ca-  
suall accompts) affects them continually, to plant  
new Mulberrie trees, with augmentation of the  
number, in like sort to augment their reuenue.

The way of  
the Count  
down

This feeding  
hindereth no  
worke of the  
ground.

ad i' quiduo T  
beal

The Mulberrie trees being the chiefeft foundati-  
on of this reuenge, that shall be the first whereat you  
shall leuell, for to plant so great a quantitie, and so  
soone, that in a short time they may giue you con-  
tentment. The which you cannot hope of a small  
number while they are young, for the little lease-age  
which

Of the Mul-  
berrie trees.

The y. booke  
of chapter of  
husbandrie.



which they render, till they are come to a meane growth. But to attend while the Mulberries haue reacht their perfect greatnes, and not till then to disleauue them, to serue in this purpose, would bee to passe your time without tasting the sweetnes of this reuenue. Wherefore it is necessary to haue abundance of these trees, to the end that of many little ones, you may draw as many leaues, as from a few great ones. So without much tarrying after their planting, you shall reape pleasure and profit within a few yeeres. Such a great quantitie of Mulberries may be limited to two or three thousand trees; a lesse number, I thinke the master of the worke ought not to enterprise this busines withall: because here is a question of the profit, which cannot grow but of a sufficient number of trees. For the particular nature of the worke, it is necessary here to employ it in a great volume, otherwise the play wil not be worthy the candle; that being for women, which for pleasure nourish some few of this creature. Yet the master of the worke shall not stay heere in so faire a way, but shall augment alwaies his Mulberrie yard, therto adding euery yeere certaine hundreds of Mulberrie trees, for that at the length, plentifully abounding in leaues, he may haue wherwith to nourish great quantitie of Wormes; and the rest also for the succour of his trees, whereof a part shall rest, as shall be demonstrated in these discourses following.

The 7. booke,  
7. chapter of  
Husbandrie.

Of the order requisite to plant, and bring vp the Mulberries, is not heere a question to speake of, elsewhere the Science being shewed: but very well to represent the obseruations necessary for their situation

*and their benefit.* tion and entertainment, that the trees may be conveniently lodged and governed, to endure long in service. For not taking good heed, within a little time they wil faile, as waxing old in their first youth. These trees are so easie to take roote, that where so ever it please you, you may bring them vp: but with much more advancement, they will grow in a fatte and moyst ground, then in a leane and dry. For the quantitie of the leaues, it is to be desired, to plant the trees in a good soile, but not for the quality; because that the leafe neuer comes forth so fruitfully out of the fat earth as out of the leane (hauing that of common with the Vines) whereof the most exquisite grow in a light molde, so that that land there brings a grosse and fullsome leafe, and this here a delicate and sauiorous; likewise of the nurture of this latter leafe, the Wormes commonly make a good end; the which happens very rarely of the other, yet that is by the meeting of a kindly season. The leaues of Mulberries will be well qualified as appertaineth, if you plant them in a leane place, & far from springs of water, provided that they be exposed to the Sun, for with the Vines, the Mulberries hate a watish and shadowie situation: in some there will bee the most assured foode, where the vines grow best. And though that the Vine, & the Mulberries, to compare them together, brings forth more in a strong ground then in a feeble; yet so it is that the little of their bearing being delicate, is more to bee prized then the abundance of that which is grosse. Adding, that touching this cattell here, one cannot abuse nor deceiue him in giving him meate, contrary

Where to  
plant the Mul-  
berries.

The fifth place  
for good and  
whole some  
leaues.

How to dis-  
pose the Mul-  
berries for  
woodes in  
ranches.



to his nature, for either he will refuse to eate it, or eating of it will neuer doe well. And this his delicate-  
 nesse, turnes to the profit of his master, which im-  
 ployes his leane grounds in Mulberries, and by con-  
 sequent occupieth not his fertill plow-lands, which  
 remaine to him francke, and not charged with  
 these trees: of which the importunitie is very great  
 oppressing by the rootes and branches, almost all  
 sorts of seede which can be sowed neere them. But  
 to thinke also to plant Mulberries in a base and infer-  
 till ground, that should be a falling into extremitie,  
 grossely deceiuing ones selfe, for the little growth  
 they will make although they take there; their tar-  
 ditie giuing you cause enough to repent you of this  
 counsell. These shall be then the places where you  
 shall edifie your Mulberries, which you shall iudge  
 proper for the vine; that is to wit, in a soyle of a  
 meane goodnes rather drie then moyst, light  
 then heauie, sandy then clayie. Such a ground will  
 beare leaues to your desire, and in a meane quanti-  
 tie whereby you shall haue sufficient, by the way  
 of numbers of trees, amplifying them as hath been  
 said.

Where to  
 plant the Mul-  
 berrie.

How to dis-  
 pose the Mul-  
 berries for  
 woodes in  
 ranckes.

From foure to foure fathoms, or from five to five, in at  
 pathes to the line, you shall plante the Mulberries if  
 you wil make forrests of them & desiring to dispose  
 the by ranks at the borders of your plough lands, or  
 about the sides of other possessions, they may be pla-  
 ted somewhat neerer together without restraining  
 the too much: the which cannot be done without  
 great losse to the trees: one may very well amplifie  
 the distance, as much as one will, for the Mulberries  
 cannot

cannot be set too far a sunder, seeing the apparent profit that the aire, the Sun, & the amplitude of the grounds, aides to the growing great of the trees, and goodnesse of the leaues. But for that, the onely sides and borders of arable lands, Vineyardes & other parts of a demeane moderately large, doe not suffice to receiue a great number of Mulberries requisit for abundance of food: and that elsewhere, the leaues of the trees which are within the thickets, is not so good as those about, because they neither haue sun nor windes at libertie. A meane between these two extreames hath been found, conueniently to plant the Mulberries, for the profit of their leaues, and without hindering the tillage of good lands; that is, to plant the Mulberries amongst the lands, in double racks equally distant two fathomes and a halfe, being of like measure espaced one tree from another, the two rancks making one alley, and to dispose the allees in length and crosse the field, intercrossing one another, leauing great square plots empty, euery one cōteyning an acre, or more if one wil, there to sow corne, which will bee reaped without being trowden downe by the gatherers of the leaues: But these will be the allies, which onely will suffer the treading downe, where for their small occupation of ground, the losse of the corne will not be great. It will likewise be necessarie to plant the trees in such sort, that they be not one right against the other, to the end not to enterpresse, rather that he of one ranke be set against the empty place of the other, by that they will haue aire enough to grow flourishingly by the aide of the Sun, which will re-

By allies.



maine free for them on the sides of the great squares. In the which, not onely may bee commodiously sowne corne, but also planted vines where they will profit; being not there too much cloyed with the shaddow of the trees, yea spread with pastures, hauing but giuen to the trees 4 or 5 yeres, for to roote. For by the manner of the parted land, of the allies, well tilled, and sometimes dunged the Mulberries will profit enough. For the hard turfe of the pasture cannot much hurt them, seeing it ioyneth but on one side. So shall the Mulberrie-yard bee directed, with much profit for the good of the leaues, and without any thing hindring the demeanes; which so furnished with Mulberries will remaine most pleasant to behold, so will they spread and amplifie, so much the better, the more often the master shall visit his land, as to that he shall bee stirred vp by the easie walks in these faire allies, in which, if it seemeth him good, he shal sowe some graines, as oats or field pease, which will alwaies pay for tillage of the ground.

The sorts of  
the Mulber-  
ries.

Three colors  
of fruit of  
white Mul-  
berries,

There are two races of Mulberries discerned by these words, blacke and white, discordant in wood, leafe and fruite; hauing neuerthelesse that in common to spring late, the dangers of the coldes being past, and of their leaues to nourish the Silke-worme. One sees but one sort of the blacke Mulberries the woode whereof is solid and strong, the leafe large and rude in the handling, the fruit blacke, great, and good to eate. But of the white, there is manifestly knowne three *species*, or sorts, distinguished by the onely colour of the fruit, which is white, blacke, and red,

red, so separately brought forth by diuers trees, bearing all neuerthelesse the name of white. This fruit is little disagreeable of taste, for his flashie sweetnes, whereby it is not edable by others then by women which haue lost their relish, children, and poore people in time of famine. For the rest they resemble all three one another, discording nothing by themselves; neither in leaues which they bring forth of a meane greatnes and a smooth feeling: nor in wood, being yellow within, as that of the blacke Mulberry, and almost as firme, by reason whereof all these Mulberries are proper and fit for Ioyners worke. The leafe comming of the blacke Mulberries, makes the silke grosse, strong, and heauie: on the contrarie that of the white, fine, weake, and light: so different through diuersitie of the nature of the leaues, wherwith the Wormes are nourished, which they yeeld of their worke. For which many desiring to compound these things in hope of profite, feed the Wormes with two sorts of meates, by distinction of times; that is to say at the beginning, with white leaues, to haue the silke fine; and in the ende with blacke to fortifie it, and make it weigh. In which alwaies they meete not: sometimes the changing of the meate, as of the delicate, into grosse, being not agreeable to the Wormes which are importuned and cloyed with it. Nor shall it be to purpose for the grosse founding which one would giue to the silke, holding a contrarie way, to begin by the blacke leafe and ende by the white. So such mingling of meates is not receiued in the great feedings of the Silke-wormes, but only where

The silke takes his quality of the leafe.



the leafe of the white Mulberrie is rare, inuented for necessitie. For the most assured, it shall be all of one victell, wherewith we will nourish our Wormes, and that of the most profitable, which yeeldes to silke; the which how much the more fine it is, so much the more prized, and in the ensuing so much more money it giueth, the end & period of this busines. And yet though that the white leafe makes the silke feeble and light, you must not for that set it behind the blacke: seeing the same discords not so much in his qualities from that comming of the blacke leafe, but that there remaines force enough for the most exquisite workes, and weight sufficient to bring in reasonable summes. This is in comparison of that silke there, that this is held light and weake: such being the difference betweene grosse and subtile things. Neuerthelesse one must not be so scrupulous, as viterly to reiect the blacke Mulberries for the silke, but only for the mingling of the food, it being not permitted in the nourishing of them, but by constraint, as I haue saide. Touching that which remaines, there are countries where they are very profitable for this busines: as in diuers places of *Lumbardie*, and hitherwards in *Anduze*, and *Alex*, and in other places towards the *Seuenes* of *Languedoc*, where great profit is made of the silke which comes of the blacke Mulberries. And although that such sorts of silke for the grosenes, be but of little price, in respect of the other, yet leauerh it not for that, but to bring in a good reuenue, considering the quantitie. Iointly that for the sale, it is found necessary, though it be course, in many works in which it is imployed.

If your land be already planted with blacke Mulberries, keep you there without affecting your selfe to accompany them with white, for the reason alleaged: but being a question to begin the husbandrie, hauing not any Mulberries, of one sort, nor other, preferring the better before the good; you shall alwaies chuse the white for your Mulberrie-yard. In which it seemes that nature her selfe incites vs by the fore growing, that she hath giuen to the white Mulberrie beyond the blacke: it being an assured thing that the white Mulberries do more easilie take, and grow then the black, aduancing more in two yeeres, then the other in fixe. Besides which commoditie, the branches which by that speedy shoot they bring forth, is cut at times, as wood, augmenting the reuenue of such trees.

The white  
Mulberries  
grow faster  
then the black,  
which is  
the reason  
why  
they  
grow  
faster.

Amogst the white Mulberries yet there is choise: By the searching out of some, it hath been found that the leaues comming of the white Mulberrie, bearing the blacke berries are better then any other. Of which curiositie making vse, we will furnish our Mulberrie-yard, if it bee possible, only with the Mulberries of such sort, to the intent that in our nurture, nothing be wanting. Neuerthelesse as the humors of men are diuers, some hold that the leaues of the trees bearing the white Mulberries, are the best: prouing their opinion by the poullen and swine, which neuer delite in the fruite of the Mulberrie trees bearing red and blacke berries, but through want of others, by that deeming them most delicate. Aboue all be sure to banish from your Mulberrie-yard the leaues too much indented, for be-  
sides

How to chuse  
the best kind  
of Mulberries.



To graft those  
Mulberries  
which haue  
need.

sides that, it is an apparent signe of small substance, it abounds not so much in food, as that which hath lesse nicks. Wherefore the remedie is to inoculate such trees in the budde or scutchion hauing need of such freedome, whence the profit which comes of it is great for this food; seeing that by this meanes, the litle of the naughty and wretched leaues, may bee conuerted into abundance of substantiall and good, with as much aduantage, to change in orchards, by like arte the sauage and wilde fruits, into manured and good, a notable article and point for this husbandrie. This infranchising may be practised to your wish in Mulberries of all ages, young and old, in those here, on their new shoots of the precedent yeere, the trees hauing bin then poled (or without so much delaying, to haue dissheded them in the moneth of March, & Iune following to graft them) and in those there vpon the smallest trees of the nurserie. To graft these trees in their tender youth is much to be prized, for the aduantage to be had in making the Mulberry ground entirely affranchised. For providing that certain hundreds of trees may be grafted, it sufficeth once for all, without constraint to returne backe againe; so that the nursery be alwaies kept full; the which is done by planting the branches comming frō the grafts, of the which so many trees wil grow vp, as there are braunches couched in the ground, and of those afterwards others comming forth, are of the same planted infinitely; from which, the trees comming of them for euer are furnished with excellent leaues, sweet and great: and by consequent exempt from all wildnesse; exquisite  
and

and abundant in nourishment. See what places and trees you are to chuse for your Mulberry yarges, to the end to haue abundance of good filke.

For the order which one is to hold in gathering the mulberry leaues, for the victuales of these creatures, consisteth the second article of this work, for to make the trees of a perpetuall seruice. It is to be noted, that to plucke off the leaues brings great damage to al trees, oftentimes euen causing them to dye: but seeing that the Mulberry is destined to that, it naturally supporteth such tempest better then any other plant: yet neuerthelesse you must goe to it very retentiuely, for to disleaue the Mulberrie inconsideratlie is the way to scorch them, for euer, to cause them miserably to die in languishment. Euery one confesseth that to gather the leaues with both hands, leafe after leafe, without touching the shoote, is the most assured way for conseruation of the trees; but yet the most expensiu, because of the great number of necessarie persons for such worke. For to spare cost, the vulgar proceedes in an other sort, which is in stripping of the leaues by handfuls, the which cannot be done but that often the branches are barked and sliued, whereby at the length the trees perish. And also this gathering corrupts and soyles the leaues, to the detriment of the Wormes, when in taking them after the fashion, as they vse to milke kine, one crushes them, as though one would make the ioyce come forth: and most oftentimes with vncleane handes, causing them to haue an ill smell and sauour.

To gather the leaues for to be giuen to the Wormes.

These losses may be preuented, if after the vses of

E

certaine



In cutting  
them off with  
sheeres.

certaine places in *Spaine*, the leaues be gathered, by shearing of them from the trees with great raylers sheeres: the which cutting many stalkes at once, and that falling vpon sheetes spread vnder the tree, the expence being moderate, as by being directly carried to the little beasts, without any sorting, as necessarily it behoueth to do before to imploy them, in separating that which is spoyled, from the good, and the young springs with it, which for their tendernesse are hurtfull to the Wormes, seeing that in vsing the sheeres one spares the toppes of the trees, taking none but the well qualified leaues. Of this inuention one cannot indifferently be furnished euery where, but only where the situation of the trees fauours the worke, fitly to spread the sheetes, receptacles of the leaues, nor likewise in windy nor rayny times; the which is committed to the discretion of the worke-master, for to imploy it finding the commoditie. For want of which clipping one may draw the leaues the most gently that one can, and with the smallest detrimēt of the trees that may be possible; the gatherers of the leaues shall wash their hands before they touch them, and shall repose them in very cleane sackes, to the ende they may be preferued from all soyle.

It behoueth  
their hands  
be washed be-  
fore they ga-  
ther the  
leaues.

The danger  
of the leaues  
which are not  
wel gouerned.

The trees suffer lesse when one clipes them, than whē one disseaues them otherwise: neuerthelesse although one goes to it very vigilantly, it is alwaies with their losse, whereby at last they perish, pulling euery yeere the value of their leaues vnmeasurably, that their vigor decayes. The which is the principall cause that the keeping of the Wormes is not alwaies  
of

oflike yeelding, the one as others, seeing other then good leaues cannot successefully nourish these creatures. For that cannot bee good which comes of a tree ill gouerned, in taking of the leaues, but only that tree which hauing been well handled during the precedent yeeres, remaineth vigorous. For so those deceiue themselves, which without taking neere heede to this, sinke themselves in this busines. From thence proceeds the most frequent defaults of this foode, and not of the nature of the worke as scrupulouslie, nay superstitiouslie and fantastiquely many of the vulgar ignorants hold, that they cannot meete well two yeeres together for some hidden imperfection, that they hold to bee in this creature, that some giues without any reason, taking for their lodging no heede to the things aforesaid. To the end therefore to assure this busines, for one which ought to haue preeminence, you shall aduise touching the Mulberries, in placing and gouerning them as I haue said. And going on farther, to haue so great a quantitie of these trees, if it be possible, that the only halfe may suffice for your foode, which shall bee disleaued while the other will make ready for the next yeere following. After the imitation of arable landes, enterchanging euery yeere, the Mulberrie-yard diuided in two parts shall serue, and rest; whereby the trees will bee maintained in perfect state, abundantly to furnish with good leaues for many generations, as well for the trees not to be so much tormented in their branches as by this resting, there rootes will haue to bee tilled without expence, for that the cost of plowing

It shal be good  
to disleaue the  
trees but once  
in two yeeres.



will arise from the corne which one sowes in that part of the resting ground (remayning from the annoyance of the Mulberries) the which onely one shall sow with corne, leauing the other vn-sowen the yere of disleauing your Mulberries, so much the more easie to gather the leaues of the trees, without laying the corne; as without such order one should doe in treading it downe, by this meanes drawing the worthie yeelding both of the trees and ground. Ouer and besides this notable commoditie there is ioyned, that then when by luckie foode the leaues ordained for the Wormes, want, as some times that happens with great displeasure and sorrow to see them perish through famine, the Wormes are happily succoured with the leaues which one takes of the trees that rest, here & there, in many trees and in diuers places, without damaging them in such quantity as is requisit for the perfection of the enterprise: and also that vnder the Mulberries all sort of seedes can hardly thriue, for the hinderance of the rootes and branches of these trees, as hath been said; yet so it is that the losse will bee lesse, the lesse the corne being there is troden downe; as freed from such tempest, it will remaine which there shall be sowne in the manner aforesaid, the yeelding of which, although it be but little, will defray the tillage, whereby in this place you shall do that which you desire, that is, you shall keepe in good temper the rootes of your trees.

ommo-  
which  
comes of it.

What seed to  
sow vnder the  
Mulberries  
with smallest  
losse.

Of all graines those which most constantly endure the detriment of the Mulberries, are, oates and field pease, although one be constrained to tread them

them down, for the gathering of the leaues, yet cannot one doe them great hurt, by reason that the blades of these graines wil be then backwards, when the trees shall be disleaued, hauing not yet much growne, which also somewhat helps them, hauing pressed them to the earth; a thing which cannot be donne to wheate, rie, nor barley, by reason whereof one cannot sow them cōueniently in the Mulberry-yard but by constraint. But to sow nothing at all in the Mulberrie-yard, and yet lesse, not to till the ground, for the good of the Mulberries, would bee too expensiuē; which will bee spared by the way aforesaid. To soyle these trees is likewise requisite; it is to be vnderstood of those which by the leannesse of the ground remaine in languishment, the which by such handling, are helped to continue their seruice, the want of doing the which will cause them to faile before their time. Experience shewes that the leaues of the old Mulberries, are more profitable & healthfull for the Wormes, than those of the young ones; prouided that they be not fallē into extreame decay, but retayning their ancient vigour, hauing yet some remainders of strength; communicating such qualitie with the Vine, which brings better wine, old, then young. And as the Vine begins to beare good wine after the seauen or eight first yeeres of his planting, so likewise the Mulberries in the same age, open the gate to their assured reuenew, so that from thence euer after, one shall not faile to draw from them their hoped-for seruice. Many neuerthelesse at this day do not tarry till this terme; vsing without delay all sorts of leaues, euen of the youngest Mulberries,

To soyle the  
Mulberries.

The leaues of  
the old Mul-  
berries are ve-  
ry good.

When the  
leaues of the  
young ones  
are good.



berries, being yet in the nurserie, before their replanting. But it is with more vncertainty of a good issue than of that growing on trees already grown to perfection, according to the more common vsage.

When and  
how to prune  
the trees.

So soone after you shall haue bared the trees, of their leaues, you shall cause them to bee pruned, in cutting off all that shall bee found broken and writhed with the tempest of disleauiing, to the end they may put foorth to shoote afresh, the which without that, they will neuer doe well, but languishingly. The last gatherers of the leaues shall bee then followed foote by foote, with a couple of men that shall so dresse the Mulberries, the which shall cut the dead wood, the disbarked branches writhed and shiuered: likewise the tops of all the others, in what part of the tree soeuer they be, aboue, or on the sides; for to constraîne the trees to cloath themselues afresh, and of this new shoote to bring forth for the next yeere after abundance of leaues, tender and delicate. And whether it be in gathering the leaues, or in pruning the trees, it behoeth you to be carefull to bare them entirely, without leauing them any leaues: for feare to turne back their liberall new spring an obseruation; that practise hath taught a little while since, against the custome, which was, not to touch the shoote, thinking by that to giue growth to the trees; but the effect is scene cleane contrary. Vsing such order, they will not tarry to spring out most vigorously, so that they will leafe againe in such sort, that within one moneth after, one will say there hath not been a leafe touched, and this shall bee done equally, that they may new apparrell

apparrell themselves againe without any deformity, that neuer agreeing with the old leaues. But with much more efficacie if the grounds be watered in this time then, for tempering the heate of the season with water to relecue the trees, and giue them new force, whereby it happens, that of their springing againe of leaues, neerly compared to their after crop, one may make a second nourishment of the Wormes with successe, as some fortunately haue attempted; the which neuerthelesse is not approued, not so much for to be very incertaine, such food happening in the greatest heates of the sommer, contrary to this creature; as for the assured losse of the trees, being not able to suffer double disleauing in one season. For besides that our Wormes are neuer well disposed, fed with leaues growing in a waterish place, as I haue related, a distinction shall be made of the times of watering the Mulberries; to the end not to make them drinke, but after they are disleaued, not before; whereby, without doubt of naughtinesse, the leaues will yceld themselves well qualified. Vnder such consideration you shall employ the benefit of the water during sommer, by that causing so much succour to your trees, after their great trauaile, as in the drought all sorts of plants finde comfortable the opportune watering, a particular obseruation for the South countries, not for others which neuer almost water.

The raines happening on the course of this food, strangely hinder the Wormes, as if they chance towards the end of their life, then when they are in the greatest force of deuouring: for that the wette leaues do breed them dangerous diseases. The most  
common

The meanes  
to gather the  
leaues, the  
raine falling  
on them or  
threatning.



common remedie for that, is to make prouision of leaues for two or three daies, perceiuing the time to be giuent to rayne, for it is as well kept good, prouided that one laies it in a neate place, fresh ayred, and for to preferue it from getting of heates, oftentimes a day turning it vpside downe. And although that the rayne presse not, yet what faire weather euer be, one ought neuer to remaine without leaues: not so much for feare to haue need, as for the quality of the victual, in so much that it is better being a little kept, as twelue or fifteene houres before it bee giuen to the creature, coming directly from the trees. If the rayne pressing driues you backe from gathering so many leaues as you neede, make recourse to this short way, which is, to cut the branches of the Mulberries that you destine to bee dissheaded the next yeere: the which with all their boughes, you shall make to be carried into the house, where hanged as raisons vnder the bearers, plachers or other couertures in an ayrie place, as in barnes and hay-lofts, being then almost emptie, their leaues will drie well and quickly; yea in the one and the other you shall find much more perfection, then by any other way whatsoeuer. For neither to winnow them with cloathes, nor to drie them at the fire, are not of such efficacie as is this meanes: by the which, besides that it winnes much time, because there needs nothing but certaine strokes with a hatchet, for to take all the leaues of a tree. Do not doubt that that will discourage the Mulberries, but that on the contrary doth reioyce them, so quickly putting them to shoote forth more strongly, whereby they winne time; for  
the

the ensuing yeere, such hastie cutting causing their great encrease of branches. In the which, although it seemeth that the hot season is contrary for such work, yet so it is, that experience manifests daily the nature of the Mulberries, yea of many other trees, to endure to be cut in the sommer. For the which commodity ioyned the sauing in this busines, resolue you not to cause to be gathered the leaues of your Mulberries in any other fashion that you shall deliberate to pole the first, keeping them for the raynie daies, as hath been said, or the time remaining faire, for the end of the food. The same reason hath place for the trees which you are resolved to prune, the disbranching their superfluous boughes, when you shall see there is need of leaues, the time being raynie or not, as one does to dishead them. A thing which you shall find to come to good purpose, for the great spoyle of leaues that the Wormes make in that time, being then their greatest deuouring, attending that with moderate labour, and much facilitie, abundance of victual is furnisht for them. The winning of time is adioyned to this busines, because that the morning bestowed to this disleauing, (otherwise lost by reason of the dewes, during the which, it is forbidden to touch the leaues,) for that the branches of the Mulberries cut with their boughes, being the afternoone before carried into the house, are disleaved very early the morning following, the which one bestowes in the worke, and that is done in tarrying till that by the Sun, or windes, the dewes be cleared from off the trees.

All the iniurie that one can do to the Mulberries,

To dishead  
the Mulber-  
ries.



In the 7. book  
27. of husban-  
drie.

in disleaving them, is holpen by the cutting off their branches, (a remedie serving almost for all the maladies of the trees, as is said of the fruit trees) that is to be vnderstood, raking from them all vniuersally, pouling them or cutting off their heads, as one does willowes, wherby in small time they renew againe: for their branches grow great and strong, to serue as afore. Wherefore it is at the end of a certain time, that one lops the Mulberries, which is then when one sees them to consume by too much trauaile. The terme is not restrained to certaine yeeres, the only facultie of the earth ordaining these things, making them to put out, and bring forth againe more wood in one place than in another. Neuerthelesse one may say that almost euery where, from ten to ten, or from twelue to twelue yeres, that wil be reasonable to practile, for the good of this affaire: and by this meanes, to loppe the Mulberrie-yard euery yeere of the tenth, or twelfth part of his trees. In disshedding the Mulberries, one shall leaue them long snagges, ouer-growing certaine feete of the forkednes of the trees, or otherwise, as it shall best accord with their capacitie: serving themselues in this place with very sharpe instruments, to the ende not to disbarke nor shatter the trees, and to make the cut very right, which shall bee aslope to cast off the annoyance of the raine. The time of this busines is euen as the lopping of other trees, that is, the winter to be passed, the sap beginning to enter (not before for the reasons alleadged elsewhere.) In a faire day, not in a windie, mistie, nor rainy; for the Mulberries shooing in like manner as other trees, yea so vigorouslie

as any other plant haue commonly the season of felling.

But because in the Mulberries is considerable the lease, the chiefest of their reuenuē, it is requisite to be vigilant to lose nothing, if it bee possible, the which one shall come vnto in delaying to cut them vntill May, or in the beginning of Iune, then when it behoueth to imploy the leaues: By this meanes, one hath seruice of the leaues the same yeere of the cutting of the trees: the which one cannot doe without this backwardnesse. And although that for the disbranching of them in such season, the trees bring not forth that same yeere so great branches, as if one lopped them in the moneths of February or March, the time being a little shortned of their growing, it importes not, seeing there is as much gotten for the yeere after: in the which such branches though they be but little, yet hauing won the aduantage, grow great merueilouslie, whereby the trees in a small time are amplie spread againe: yet that against the precepts of arte, constrained by necessitie, that one cuttes the trees in rainie weather and without regarding the Moone, as is fit, they are of so free and good a disposition.

When to lay the bill to them.

Touching the age of the moone it is handled diuersely according to the diuersitie of the groundes that gouernes such actions. By the heavenly influence the Mulberries pouled in the encrease of the moone, bringes forth their younge shootes long without spreading branches, and in the waine, short with many litle branches crossing the principalles. For to compose the things, (hauing election of the

What time of the Moone is to be obserued.



time without constraint) we will dishead those of our Mulberries, being in a leane ground in the new Moone, and in the last quarter, planted in a fat ground. So those there will be furnished with new shootes, as long as the feeblenes of the groundes will permit them; and these here, through the force of the groundes, will conueniently regaine that, which to purpose they would not cut in the encrease, by reason that their spirie branches being not kept back by the little shootes, will lengthen too much, whereby bending downe they will deforme the trees; those remaining emptie in the midst after the maner of palme trees, that being not to bee feared in the rest by reason of the leatenesse of the groundes, which neuer causeth the to shoot out too abundantly. By this meanes they will put themselves in wood againe, neuerthelesse some more then others, according to the goodnes of the soile: but not any so slowlie, but that at the tenth yeere they will be capable to begin againe their accustomed seruice; provided the groundes be tilled as appertaines. For in vaine one should trauaile exactly to entertaine the Mulberries by their branches if one makes not account of their rootes, whereby at the length they faile; as in such error those fall, which to spare the tillage, plante their Mulberries in meadowes, where they impaire. In which they deceiue themselves, because they consider not that the Mulberries left in vntilled groundes, cannot bring so many nor so good leaues as those which are tilled. And although there are scene many faire Mulberrie trees in meadowes, the answer is, that the earth is fat, & in ensuing, if not contrary

It behooueth  
to plow the  
ground of the  
Mulberries.

contrary, yet at the least, not at all good for the Wormes: or being leane, the trees will not dure long through lacke of tilling. The assured meanes that there is to dresse a Mulberrie-yard, thick spread with boughes, and to keepe it without expence, vntill a reasonable greatnes to serue well, is represented hereafter in the discourse of the fruite trees; that is in planting the Mulberries in rankes by line and leuel, from foure to foure, or from five to five fathams; and in the same rankes to plant Vines amongst them, low, or propped according to the vsage of the countrey: the which by labour will bring their fruit without alteration, fifteene, or twentie yeeres; when being oppressed vnder the shaddow of the trees, they wil fal vnder the burthē: then one shal pul them vp, to leaue the place free for the trees, which will onely occupie it; and so one shall find to haue brought them vp for nothing. The which shall be to finish the discourse of the victuall of our little beast, for to make them their lodging.

In the vi.  
chapter the  
xxvii. booke of  
husbandrie.

It behoueth also to dresse a lodging for our Wormes with such commoditie, that they may easily doe their worke, for to yeeld vs abundance of good filke. The which one should hope in vaine, lodging them in a place vnproper and contrarie to their nature: for as they cannot be deceiued in their foode, without manifest losse; no more can they suffer an ill habitation. And as one must not enterprise to plant the vine, if he bee not forthwith provided of cellers and vessels for the wine: so this would bee to no purpose, if one should plant the Mulberrie-yard, without afterward, to giue quarter and place

The lodging  
of the Silk-  
wormes.



to the Wormes. All such like habitation desire they, as men, that is, spacious, pleasant, wholesome, far from ill sentes, dampes and humidities, warme in the cold time, and fresh in the hot; neere the foundation, nor vnder the lathings of the couerings neere the tyles, one must not lodge the Silke-worme, because of the intemperatenes of these two cōtrarie situations, whereby the one may be too moyst, & the other too windie: too hot, & too cold, according to the seasons. Neuerthelesse that is to be borne withal, so that one can erect the lodging of the Wormes on one only stage neere the ground, provided that the plot-forme be erected three or foure feete, for to auoid dampes, and ouer that that there bee boords close ioyned, to the end the creatures may be kept aloofe from the tyles, the approach and neerenesse of which is alwaies hurtful vnto them, because that the windes and colds pierce through them, & the heate of the Sunne is there insupportable, when it lights vpon them in his force. If for the capacity of your house, you can commodiously be fitted for roome to feede them in, it will be great ease to you, and you shall spare the cost to build new lodgings expressly for this: making your account that the Worms coming of ten ounces of seede, will be nourisht at ease, within a haule of seuen fadomes in length, three in breadth & two in height, vpon which aduice you may ground, for to dispose your house to such vse; or being to build it new, you may amplifie your edifice with some members: the which by this meanes will bee very wel represented, and wil be so much more conuenient, as for the little beasts you shall haue more augmented

The reckoning vp of the  
fitnes of the  
lodging for  
the Wormes.

augemented it: when after hauing occupied it some small time, it will remaine free to you the rest of the yeere, to entertaine and receiue company.

But let it bee within or without the house of the master, which desireth to nourish these creatures in, Their dispositions. it is very requisite their chambers and haules be to be opened on both sides, opposite one against another, of the East to the West, or of the North to the South: to the intent, that the ayre and winds hauing free passage through them, may refresh the Worms, that then being ready to perfect their worke are vpon point to stifle, through the filke wherewith they are filled, and the great heate of the season. Taking heede neuerthelesse, that the windowes bee so well glased, or papered, that one may shut them in any other time, so properly and so well, that the coldes cannot enter, being as preiudiciall to the Wormes in their beginning, as the heates in their ending. These creatures also desiring to be in a light place, willingly not suffering the darke, from which they creep away seeking the light, the inner part of their lodging shall be pargeted and entirely whited, that the Rats may not eate through the slippery walles, leauing not there any chinckes, creuesses, nor holes, for Mice, Rats, Creckets nor other vermine, enemies to our Silk-wormes. The haules or chambers shall be Their mouables. proportioned with tables necessary to rest on these creatures, the which one shall make of all sorts of wood; the best whereof is the most light, for his easie handling. Some preferre before boordes of any wood whatsoeuer, the tables made of reedes or canes, cleft or whole: not only for the ease of their  
light-



How to set vp  
the skaffold to  
hold the  
Wormes.

lightnesse, but also for the health of the cattel, which are fed vpon these canes, or hurdles made of them, so that there is a certain aire piercing through them, keeping them cheerefully and without offensive heate. Vpon which it behoueth to distinguish prudently, such ayre being not alwaies proper to the Wormes, but onely to be chosen at the end of their life for refreshing them. To that purpose also the wilde reedes and bulrushes of marish places and pooles may serue, yea rie straw, which is got for a small price. In like manner, linnen, stretched with little tackes vpon light wood, is vsed with ease in this steed. Many pillers of carpenters work, directly squared shal be perpendicularly erected fro the ground to the ceiling to support the tables, bearers of our Wormes, the which shall bee set vpon little ioysts crossing the pillers, planted of equall distance on these pillers sixteene or eighteene inches one from another. The tables being so ranked in such measure, the Wormes wil be fitly serued. But the boords shall not bee of equall breadth, but one shall exceed the other foure fingers; the lowest next the floore, being the most largest; and the highest approaching the ceiling, the most narrowest, whereby the skaffold which shall bee composed of all together will bee made in the fashion of a pyramidis, to the great aduantage of the wormes, the which by such disposition shall bee prelerued from ruine, when wandering by the edges of the tables, from one end of the skaffolds to the other, seeking a fit place to vomit their silke, they fall from aboue, downe vpon the floore, where they squat in peeces.

A losse which one neede not feare, the tables being in such sorte fitted, for each to receiue the Wormes, falling from his higher next to it, the which are not offeded at all through the little distance of one table to another. The breadth of the most lowest table, shall be limited even to this proportion, that easily of one side a man with his hand may reach to the middle, for to tend the Wormes. As for the others, their deminishing will make easie the seruing them, by measure as one shall goe vp on high, and shall approach neer the feeling. Many of such skaffolds shall be erected in euery part, hall or chamber, after his capacitie, and in such manner, that any touch not the walles, for feare of rats: and likewise for to be able of all sides to giue victuals commodiously to the creatures; betweene the which skaffolds one shall leaue way large enough, easily there to passe and repasse. One shall also take carefull heed, to make verie firme the skaffolds; to the ende that the Wormes growing great doe not cause some part to fall, (as heretofore that hath chaunced me with losse,) and that they doe not shake by the weight of the ladders which are set against them, going to visit the creatures, but shall remaine assuredly firme vnto the end, for that cause sparing neither wood nor Iron. There are diuers sorts of ladders which are made for this seruice according to fantasie. Some make boords about the skaffoldes, vpon the which one goes as by galleries, for to tend the Wormes, making them round about: one goes vp to them by little staires, appropriated to this. Others make high formes and long of light wood, so much the more easie to bee



remoued, as neede shall require. Others doe not vse any other touching this, but a common ladder. But what ladders, or mountings so euer they be, all are good; provided, that they serue to this businesse, so that without too much paine, by them one may fitly goe to feede and visit the creatures.

The graine of  
Silk-wormes.

The end of these prouisions, is the silke, the which so much the better, and more abundant you shall haue, as the seede shall be better chosen. A common consideration with all sorts of sowings for the difference that there is of feede, to feede. For what ought you to expect of bastard graine, but bastard silke, what good leaues fouer that you haue, each thing bringing forth his like. With great curiositie the let vs search the most profitable graine, reiecting that, the worth whereof is suspected; In the prooffe consisteth the most sure knowledge of this seede, though there bee many directions to discern the good, from the ill. Amongst al the seeds of Wormes, whereof wee haue knowledge, till now, wee haue held that of *Spaine*, for the best, fructifying very well, through all the prouinces of this Realme, where they make a trade of this feeding. That of *Calabria*, since certaine yeeres, hath woon the repure, not so much for the goodnesse of the silke that it brings forth, as for the abundance that comes of the cod which is great, in respect of that of *Spaine*. And although they both be hard, an assured signe of abundance of matter, and by such reason one is to be preferred before the other: the qualitie winning the prize, the seede of *Spaine* shall be held in the first rancke, in expecting that by reiterated proofes, wee cannot

cannot reasonably set it behind any other. As for the graine which of long time is naturalized in the provinces of *Languedoc*, and those neighbouring parts, one must make no great account of it, neither for the finenes nor for the quantity of silke that it makes: for how exquisit soeuer the seede of silke Wormes is, transported from far in to such quarters, it doth not continue long in goodnesse, but degenerates at the end of certaine yeeres: the graine which is directlie brought from *Spaine*, the first yeere it doth not so well, as the three or foure yeeres following: the which being passed, it beginneth to decline in his goodnesse. In the graine it selfe, is also knowne of the changing by the time, and in his body, and in his colour. For comming directly from *Spaine*, it is little, of a darke tawny colour; and kept, waxeth great, and growes bright, till then, that at the terme of certaine yeeres, it becomes gray, as gray cloth. The graine of Silk-wormes of they *Seuenes* of *Languedoc* is so qualified, the which as well for their proper natures, as for being feed with the leaues of blacke Mulberries, brings forth cods or bottoms great, and soft, by consequent smally furnisht with silke, of an orange colour, or gold yellow, manifesting the grossenesse of the silke from the difference of the fine comming of the *Spanish* seede, the Wormes of which haue been nourished with the leaues of white Mulberries, and the most part of bottoms are white, incarnadines, of the colour of flesh. Behold the iudgement, that one can make of the knowledge of the goodnesse, of the seede of *Spaine*: the best of which will bee the



# 44 The perfect use of Silke-wormes,

smallest and most darke of colour; provided it be a-  
liue and not child with cold: the which is proued  
on the naile, in all feedes of the Silke-wormes: ac-  
counting for good, that which breaks in cracking,  
casting forth humor and moisture. The littlenesse  
of the graine of *Spaine* makes the number of  
Wormes, the which ioyned with the hardnesse of  
the bottoms cannot chuse but make abundance of  
silke, which for his finenes is of great request. Indif-  
ferently all seede comming directly from *Spaine* is  
not such as you shall desire, there being countries in  
that kingdome better for this, some then other: and  
that the more honestly to make it vp, there go rather  
trusty, then deceitfull persons. Of the which parti-  
cularities you shall take heede, to the end so much  
the more profitably to ende your feeding, as with  
more art you shall haue begun it. Wherefore this  
article is notable, that after the imitation of good  
husbandmen, it is necessarie to change the seede e-  
uery foure yeeres, or from other terme to other, ac-  
cording to the reason of experienes. And for to doe  
that with lesse hazard, it shall bee fit to haue euery  
yeere, some ounces of new seed of *Spaine*, the which  
set apart, you shall conserue carefully, and so long  
as you shall finde, for the proouing, his worth to me-  
rit. By which resolution your feeding will keepe a  
good course, and without confusion, maintained al-  
waies in good order and estate. You must not fur-  
nish your selfe with old seede for his infertilitie, that  
being of no worth! which passes one yeere. And  
though that the keeping of the seede, of this creature  
be difficult, because that naturally of it selfe it hatch-

Euery foure  
yeeres to  
change the  
seede.

eth in his season, yet so it is, that avarice hath so much gottē, that by deceitful inuentiō certaine impostures forcing nature, conserue the seed a long time without hatching: when they cannot sell it in time they keep thē in little bottels of glasse, in a coole place, as within deepe wells, hung downe with cordes neere the water, during the great heates, so keeping them more then a yeere, to the losse of those which by it.

Some before they put to hatch the graine of Silkwormes, steepe them in the most exquisite wine they can get, Malmseie or other, finding by such prooffe, that the good, as the most heauy, goes to the bottome, and the naughtie for his lightnesse swimes aboue, by reason whereof it is reiected. After the good is taken out of the wine, it is let to drie in the sunne, or before the fire, laid vpon very cleane paper, couered with white linnen, or smooth paper, to the end that too much heate hurt it not; after it is put to hatch. And not only serues such steeping to distinguish the good graine from the naughtie, but also to legitimate and fortifie the good, to make the Wormes come forth free and strong, and for to cause them to hatch almost all at once; according to the practise of hens egges, which for the same cause are plunged in water a little before that one puts them to hatch. A commoditie which one cannot hope for of the light graine, but to hatch late (or not at all) whereby the Wormes continue slow to all their workes, to hatch, to feede, to spin: yea subject to diseases; being not able to suffer any accident; but almost alwaies languishing, not onely dye they by little occasion, but infect the best qua-

To imbibe the seed in wine before you put them to hatch.



lified of their next neighbors. To which daunger he exposeth himselfe, that without distinctions mingles together the good seede with the ill.

How to hatch  
the graine.

To hatch this graine vnder the arme-pits, or betweene womens paps, is not a profitable thing; not so much for feare of their floures as some thinke, as for the shaking it to and fro: which they cannot do withall, carrying the seed about them, but that they tumble and mingle it; happening at euery minute that the Wormes willing to come foorth of their egges, are misturned by one palse or step of them which carry the seed about them, ouerwhelming all one vpon another, to the losse of the creatures which are stifled in the throng, though but with their like. Setting this article the farthest off, it is most requisite to keepe curiously the seed during all the yeere, preparing in good time, easily to hatch them in the season. Hauing recovered them, either of your own, or elsewhere, you shall lodge them within boxes of wood well ioyned, garnished within with paper on the creasts, to the end that through them no seed go out; nor any dust, vermine, nor other offensive thing enter in the box; but that the graine may remaine there neatly. You shall put these boxes within chests, or elsewhere amongst cloathes, except linnen, which because of the moystnes of such matter, is hurtfull to these, there to remaine vntill the season for to imploy them; and to the end that they feele not any molesting dampe, nor cold during such remaining, it is requisite continuing winter, to make fire in the chamber where these chests shall be: for being more hot then cold, the graine is there prepared

red afore-hād, as you desire; which it would not do, if after the order of some, one should keep it within viols of glasse; the coldnesse of which substance makes them to hatch late. These necessary obseruations haue learned vs neuer to expose the seed of these Wormes (no more then the Wormes themselves) to the mercy of the colds: but to reserue it so together as one can from the humidity and frosts. For to do this effectually chancing to send for it into *Spaine*, or elsewhere, it shall be done during summer: by this meanes, shunning the incommodities of Autumne and winter, it wil come to you wel qualified, and very good if it be brought by land; by sea the thing being not without hazard, because of the foggie dampes, and other ill qualities that it hath, contrary for such seed, so as the losse of many, (with reason) makes vs to feare such danger. The long keeping of the seed with you, helps to naturalize it in your ayre, whereby it hatcheth better and rather then hauing not at all abid with you: wherefore it is requisite to furnish your selfe of seede immediately after the gathering of the silke, if it may bee done, to doe it without any delaying; you must abstaine from visiting too often the graine of Wormes, especially the spring approaching, for feare that by such curiosity, one treads not awrie to his losse. The time to put to hatch this graine cannot bee directly ascertained, for that the season being forward or backward, entirely gouerns the worke; causing the shooting forth, or stay of the Mulberries, the only victual of these creatures. This *In what time.* shall be then the true point, that then when the Mulberries.



berries begin to budde, not before, to the end the little cattel at their hatching may find meat readie to liue on, and of their owne age, (as the child of the milke of his mother) and not to be troubled through want of Mulberrie leaues; fearing to let them die for famine you shall feede them with the buddes of nettles, with young lettice, or with the leaues of roses, & like druggeries. But being fallen into such necessitie, the best shal be to serue them with the leaues of Elme, somewhat edable by the Wormes, by which they receiue succour, for some sympathy that it hath with that of the Mulberrie. Foreseeing which trouble a farre off, it shall be requisit to plant a certaine small number of Mulberries in the hottest place of a garden against some sunny bancke, and there by good dressing, dunging, and watering, to hast them to budde quickly, by such artificialnesse hastening his slow nature. And this shall bee for to shunne the losse of the little beasts, when being newly hatched, the leaues of the Mulberries are vniuersally spoyled by frostes or mistes happening vnawares (as that was seene in *Languedoc*, *Pronence*, and in those bordering places, these yeeres past) if one keepes such Mulberrie trees, purposely to this particular seruice, sheltred against the peruerse time, after the maner that the prudent gardner keepes his precious plants: the which Mulberrie trees preserued from such tempests will feede the small cattell, in attending while the others haue sprung forth.

The danger  
of too hasty or  
slow hatching  
the egges.

And as by too much hasting one falles into this danger and in consequence by famine in perill to lose the little beasts in their beginning, likewise to delay

delay the hatching of the Wormes, puts them to hazard of death in their ending, when by such backwardnesse their climbing happens in a very hot time, contrarie to their nature, because that being then heated, through the silke wherwith they are filled, they desire nothing but refreshing, easily to end their taske. Such difficulties are provided for by the meanes of the hastened Mulberries, aboue mentioned, the which furnishing timely leaues you shall in like maner hasten to hatch the Wormes, which they repay at the ende of their life, whereby they will remaine so much more assured, as you shall lesse feare their comming in the time of the great heates. The remaining colds of the winter being not so vnseasonable at the beginning of the life of these Wormes, as the heates at the end of the same: for that in the coldes there is some remedy for the succoring of the Wormes, which is in keeping them in a very close place and warmed with embres, during the sinister times of cold; but against the heats other is not found than the fittnesse of the lodging, the onely meanes to safegard these creatures from such annoyance.

The course of the moone is also obserueable in this action; the Wormes desire to hatch & spin their silke during the increase of the Moone; for that they find themselves more able; than in her waine. But that cannot accord euery where nor in euery time, for the diuersities of regions, and seasons, hotter or colder, some then others, lengthening or abridging the life of these creatures. If you are in a place where the Wormes are eight weekes ere they worke, as

What time of the moone is proper for it,

the Wormes



commonly they do in a place more cold then hot, or in a time extraordinarie chill, the thing will so fall out, that in like time of the Moone as they hatch, they will also spinne. Wherefore comming at the first quarter, they will be then spinning : but where through the benefit of the climat, their nourishmēt is more forwarded, as towards *Auignon*, & throughout all her neighboring partes, being not farther remote then fortie, or fiue and fortie daies : it is impossible so to dispose this affaire, for the inequality of the daies. Wherefore leauing the successe of the end in the hand of God, their nourishing shall begin in the encrease of the Moone (if neuerthelesse the leaues of the Mulberries will permit it, which laies the foundation of this busines) for that the Wormes fortified in their beginning, by the influence of such a Planet, forthwith goe cheerefully on in augmenting it, making them to come from the second or third, vntill the fift or sixt day of the new Moone, the cluing of these creatures according to the last computation will happen towards the beginning of the waine of the Moone, certaine daies after her ful, which hauing then force enough, communicates it sufficiently to the Wormes.

To prepare  
the boxes be-  
fore to hatch  
the Wormes.

For to hatch the graine at the time named, you must remoue them from their first vessell, into boxes of wood, lined within with cotton or with fine tow pasted to them; after that the said cotton shall be couered with a white paper, to the end to conteine the feede warmly and without losse : on the top of the feede one shall put a little bed of tow, and ouer that a paper thick pierced as a sicue, with little holes, eue-  
rie

rie one capable for a graine of millet onely to passe through. Through the row, and the pierced paper the Wormes comming forth of their egges shal goe, afterwards hauing left the shels vnder the row, they go to fasten at the leaues of the Mulberry, set to this purpose ouer the pierced paper, from whence being taken they are transported and lodged elsewhere as shall be demonstrated.

And to the end that that come so to passe as apper-  
tayneth, it shall behoue you to helpe the Wormes to  
hatch in adding to their naturall heate this deuice of  
arte. One shall keepe continually the boxes within  
a bed, the curtaines close drawne betweene two fea-  
therbeds, moderately heated with a warming pan  
euery two houres, without sparing the night, one  
shall visit them, for to withdraw the Wormes, by  
quantitie as they come. Such frequent visiting is  
necessarie, as well for that cause, as also to renue the  
heate of the bed, in warming it oftentimes, to the end  
to keepe the seed equally hot, for feare that by sloth-  
fulnes, leauing thē there too chill, they should catch  
cold, to the ruine of the Wormes. From the boxes  
one shall take the new Wormes, for to ranke them  
in sieues, with paper at the bottoms, or other vessels  
appropriated to receiue them in their beginning,  
and for feare to hurt thē in remouing, as to that their  
tenderesse subiects them, one shall touch nothing  
but the leafe to which the Wormes being fastened  
with that they shall be lifted vp & lodged in vessels.  
There they shall be held during certaine daies, whi-  
lest which you shall by little and little accustome  
them to the aire, to the ende the violence of the

To keepe the  
boxes warme  
with the seed  
in them, and  
to visit them  
often to with-  
draw the hat-  
ched Worms.

To lodge thē  
in sieues and  
to keepe them  
warmely.

They shall be  
vsed to the  
ayre by little  
and little.



change cause them not to perish. As on the contrary they will by too much heate, if one aduises not to temper them by reason, going from degree to degree, keeping them lesse warme one day then another, by measure as they aduance in time, without retrograding, that is to say, not to bring them neerer to the heate, hauing begun to keepe them aloofe, for feare to parch or stifle them, vntill that age discharge

They shal rest vpon beds, the curtaines being close drawne for certain daies.

their gouernor of such paine. The sieues, great boxes or other receptacles, couered with linnen, garnisht at the bottoms with paper, shall bee put to rest vpon beds, with the curtaines drawne, for to shield these little creatures from the windes and coldes, till the foure or fife first daies of their tender youth, from thence forward they shall be transported into a little chamber, hot and very close, out of the force of the winde, vpon perfect clean and neate tables couered with paper, there for to begin to hold their ranke.

Afterwards taken forth of the sieues in a warme chamber laid vpon tables,

One shal lodge the very neere one to another, to the end that so pressed with vnitie, they may conserue their naturall heate: that which they could not do, being a farre off in their beginning, vntill that, when they shall grow great, more ample lodging be giuen them. But it shall be vnder this necessarie obseruation, not to mingle confusedly the wormes. It rather behooueth to distinguish them, by the times of their ages, for the importance of this foode, touching the ease, and the sparing. For if from the beginning this point hath been prouided with curiositie, assembling the Wormes by the dayes of their coming, without entermingling them together, one shall see them without disorder to agree together, during

Without confusion of age or kind.

Without confusion of age or kind.

during their lives in all their workes: in eating, in sleeping, in spinning, with much pleasure, accompanied with profit, for the abundance of silke which wil come of them, the ayme of this busines. Through want of which singularitye there will happen confusion to your foode, the old Wormes neuer sorting with the young; the one desiring to sleepe while the other eate, and to eate when it is a question to spin: but with the aforesaid disposition the worke comes to a good issue. By such distinction the races are separately preserved, as is most requisite; to furnish ones selfe with the sorts of this cattell, according to the opinion, one shall take of their worth by the effect of their worke. In steed of sieues and great boxes, which we vse in this turne, the *Spaniards* fits themselves with vessels which they call *Garbillos*, made of straw, osiers, rushes, or other light matter, which they plaster within with oxe dung, wherewith they make pargeting: which dried in the Sunne makes the vessels to smell of a saour agreeable to the Wormes, and sufficiently warme. The which qualities ioyned with the capacity of the vessels, makes them serue the long enough. For that is till their third change, that they keep the Wormes there; framing these *Garbillos* so great, and furnishing themselves with such abundant number, that it suffiseth to satisfie their purpose.

The Spanish  
Garbilloa.

For more ease, a lodging for the Wormes shall be expressly erected for to keep them ioyned together, neuerthelesse by distinct separations, vntill their second or third change, if one will: where they will be conferred warmely, & out of danger of Mice, Rats, dust and other iniuries, with more assurance than any where else. That is, after the manner of a great

A very fit lodging for the Wormes in their first beginning.



presse or cubbord made with many stages distant one from another foure fingers, or halfe a foote, on which the little cattle shall be put, without any whit bruising them. These stages shall be as it were little planchers, composed either of light firre boords, or of some other proper for this, or of cleft reeds, or log straw, and set so fitly that one may separately draw them out and in at pleasure, in sliding them as tiles easily to visite & tend the small beasts. And they shall be pasted with oxe-dunge after the *Spanish* fashion, if one so desires it; seeing such curiosity hath been found profitable, to the end that nothing bee wanting in the rearing vp of our Wormes. The lodging shall be compassed about with linnen cloath tackt to the doores, as paper windowes opening and shutting of three sides; and before the formost doore a little window to giue vent shall be added; in shutting of it at need to keep them so much the warmer, or in opening of it to giue them ayreas one will. So with much commodity the Wormes shall be lodged in their first time, which is then when they haue most need of it, passing in assurace these gliding pases of their tender age, where many perish through want of good habitation: for being fortified with time, they shall be taken from thence, and remoued into more spacious lodging, as shall be shewed.

To cause them  
to come with-  
in few daies is  
necessary.

It is to be desired that the Wormes come forth all within foure or fise daies distance from the first hatching vntill the last; those neuer lightly making good end which tarry longer, but miserable and sluggish end their life in languish oftentimes without profit. Wherefore it is, for that that one prouokes the

the seed, warming it with curious diligence, as hath been shewed: vsing which order, little seed remaines vnatched. You shall not then make any account of the graine which shal be remaining in the said boxes after the said terme, nor of the Wormes likewise that shall be so backward: but rather reiect all that as vnprofitable. Such hatching of a company is one of the most notablest points of this busines, whereby finally with sauing, the profit issues according to the proiect, because that these creatures taking life almost in the same day, are more easily handled than if they were of diuers ages. I haue also said that they suffer much by the colds, and by the heats in all their ages: for in their youth, the cold troubles them strangely, hauing great power ouer them, being the most weak and delicate cattell which is fed: and in age the heat killes them. When in their greatest force, you finde them bigge and vnwealdy, through the silke wherewith they are filled, which constraines them to seeke fresh ayre. By contrary remedies one prouides for these things: but with lesse difficultie one dresses the Wormes in the cold, than in the heate, that is, in holding them straightly in the beginning, and largely at the end, by little and little according to their age inlarging them; finally to put them for altogether at their ease on the skaffolds. In the meane while imploying to purpose according to accidents, the warmings by the ayde of the fire, and the refreshings by opening of the windowes of the house.

This creature  
feares the cold  
and the heate.

The remedies.

The Silk-wormes during their life change foure times their skins, (as Serpents do once a yeere) which causeth

They haue  
foure naturall  
and ordinary  
diseases.



36 *The perfect use of Silke-wormes,*

cauleth them so many maladies; during which, they  
 eate not at all, but vnmoueable they do nothing but  
 sleepe, passing so their ill. These diseases, (for these  
 reasons called of the *Spaniards Dormilles,*) are com-  
 parable to these of young children, as small pockes,  
 measles, shingles, & other that in necessity they haue  
 in their youth, of which they are helped being well  
 looked to. So by good gouerning our Wormes are  
 saued from these necessary mischiefes, shunning the  
 danger of death: neuertheless with more difficultie  
 in the latter, then in the first, through age in being  
 more oppressed old then young, as it happens to  
 men, which hauing not had in season the diseases of  
 youth, being stricken more late, more dangerous is  
 also the issue. Besides these ordinary diseases, the  
 Wormes haue accidentall diseases comming of the  
 time, the meat, the lodging, and of the gouernment:  
 the which one helps vsing particular remedies, as  
 shall bee shewed. In the care of the ordinary ones  
 there is no point of skill, you must only abstaine  
 from giuing them to eate, when they refuse their  
 meate, and to giue them moderately, their appetite  
 being come againe; alwaies to feed them with good  
 leaues, and to keepe them neatly. The first maladie,  
 (being diuerfly called) as a change, a drowlines, or a  
 benumbing, happens at the eighth or tenth day  
 of their comming forth: the eight or ten daies fol-  
 lowing them one after another, more or lesse, accor-  
 ding to the climat & quality of the season, of which  
 the heate shortens the distance of these termes. To  
 which also serues the goodnesse of victuals, and di-  
 ligent care; for so much more as one giues to these  
 creatures,

They haue al-  
 so accidentall  
 diseases.

creatures of leaues well quallified (if so be they will  
eate them,) so much more shorter will their life be.

The sicknes of these wormes is knowne first of all How to know  
their diseases.  
by the head, which swelles then, when they will  
chaunge, insomuch that in that part their skinn be-  
gins to peelee, but more apparantly in their last be-  
nummings then in those that follow, not being able  
almost in the first to discerne what it is for the little-  
nesse of the creature. While their droufinesse hath  
seased them you must refraine to giue them meate,  
(for that would bee but lost labour) onely one shall  
cast them some pittance to sustaine those amongst  
the drowfie ones, which wake; the which by this  
meanes discerned shal be separated from the others,  
for to be assembled with those which are of equall  
age. Each disease holdes them two daies, at the  
third beginning to get their health againe: the  
which one knowes by their feeding which comes  
to them with much appetite; then one shall giue  
them victuals againe, but sparingly, to the ende not  
to fill them too quickly, augmenting their ordinary  
day by day as one shall find them affectioned to eat.

Twice a day, morning and euening, at certaine Their diet li-  
mited.  
houres one shall serue the Wormes with meat, from  
their hatching, till their second change or droufines,  
so limiting their repast. Fro the second to the fourth  
and last, thrice a day: & from that till the end of their  
life, foure, five, or sixe times a day: (and in some,) so  
much as you please, and that you shall see the crea-  
tures can eate. For then you must spare no foode,  
but rather cloying them, to fill and satiate their appe-  
tite, hastning them by much eating to perfect their



task. And as the vessell wil neuer run ouer, except it be full; so these Wormes will neuer vomit their silke, till their bodies be satisfied: the which engendring of the leafe of the Mulberrie, all is as soone found ready to be sponne, as the quantitie of the leaues destinde by nature to such worke, shall be dissolued. By such carefulnes there is no more leaues wasted, then if one distributed the skarsellie: for that within eight daies, the Wormes will eate neere as much, by little and little, as within foure giuen them liberally. Then this is without occasion that one should feare the expence, seeing that on the contrarie by such liberalitie (besides all well compted, it expences nothing more) comes this sparing, which winning time, the cost of the feeding falles out lesse. Afterwardes one shall mark very curiously the qualities of the leaues, as an article bearing sway in this foode. For all leaues are not proper for this, though they be produced by Mulberries without fault: happening sometimes, that by extremitie of drought, or moysture, meldeu, heate droppes, and other intemperatures of the time, all the leaues, or most part of the trees become yelowish, spotted, or speckled, a signe of vnholosome and pernicious foode. Of such one must make no account, no more, then of that growing out of the Sunne, within the the interior parts of thicke trees, or in shadow vallies, nor of that which is wet, by raines or dewes; but rather it behoueth to reiect them, as infected, not vsing them at all, for feare of killing the Wormes. The leaues of the second spring, one shall put in the same predicament, that is to say, those which shoote afresh,

The qualities  
of the leaues  
very considerable.

afresh, on the trees alreadie displeased, which the ignorant imploy for want of other: but with too much hazard, because of their maligne substance, contrarie to the creatures, happening through the inequalitie of their ages. For there needes but one repaste to be giuen them, to make them all perish of the flux, that such new leaues, will bring them; because that by their tendernesse the little beasts, eates them with so auidous and greedy an affection, that they fill themselves till they burst. Wherefore this shall be for a maxime, that the Silk-wormes shall be alwaies fedde with leaues of their owne age, to the end that by good correspondencie, the leaues be as tender, and hard, as the creatures shall be feeble, and strong, according to the time of their ordinarie commings. The faulte of the wet leaues, is corrected by patience; for one must but tarrie till the raines be past and the dewes dried vp, to gather the leaues, going to worke after the Sunne shall haue shonne certaine houres on the trees; neuer before. But for the others which are ill qualified there is no meanes to correct them, from which, as pernicious food, you shall abstaine. One shall not neede to take care for the expence of these precious creatures, during the first three weekes, because of their youth, and littlenesse of bodies which makes them bee contented with a little, & yet that little taken in the lost parts of the trees, as of the body, of the succers amongst the good branches, and elsewhere, from whence for the profit of the trees, also one should cut them. At the beginning, one must goe to the leaues with handkerchers, afterwards with little baskets, then with

A notable maxime.



great ones, and finally one employes, for this victual-  
ling both maunds and sackes, encreasing their food,  
by measure as the grow in age.

The gover-  
nour of the  
Wormes shall  
keep himselfe  
neately.  
Shall drinke  
wine before to  
come neere  
his flocke.

I have shewne how necessarie it is for the leaues  
to be handled with cleane hands, for the danger of  
foulenesse. Of this point the gouernour of these  
magnificent creatures shall beware, for himselfe to  
be an example of neatnesse, to all those which hee  
hath vnder his charge, to the end that any of them,  
approch not otherwise, then apperteineth. The go-  
uernour shall not forget to drinke a little wine earlie  
in the morning before he goes to worke, for that in  
communicating the smell of such licour to the  
Wormes, it preferues them from all stench, specially  
from the naughtie breath of folkes (more strong be-  
ing fasting, then after eating) which these admirable  
beasts feare much. Wherefore the entring of their  
lodging is not to be indifferently permitted to al sorts  
of persons, by that shunning the harme that too free  
frequenting brings to the creatures; which the su-  
perstitious vulgar, fortishly attribute to the eye, be-  
leeuing that there are people with by their looks  
brings ill lucke to the Wormes; but it rather is, nay,  
assuredly, the breathing of the ill breath which cau-  
seth them, indispositions. For which considerati-  
ons, the lodging shall be swept euery day, and to  
keepe them sweet you shal often sprinckle the floore  
with vineger, after to strew it with some herbes of  
a good smell, as with lauander, spike, rosmarie, time,  
sauorie, pennie royall, and such like: adding some  
times, perfumes, made with *frankencense*, *beniwin*,  
*storax*, & other odoriferous drongues, which shall be

The Wormes  
shall nor be vi-  
sited with ma-  
ny folke.

Their lodging  
shall be kept  
neately, it shall  
be perfumed  
sometimes.

burnt on coales in the halles and chambers. The tables in like manner, of the Wormes, shall bee often made cleane not suffering the cattell to rest long vpon the litter, the which one shall take away euery third day, or euery fourth, after the second chaunge, or benumming, for to keepe them especially sweet and cleane, then when as the foultrie heats approach, whereby they are pestered: vntill that time, being not requisit to goe to it so curiously, for the litter during the coldes, is rather profitable then any waies hurtfull to the Wormes, keeping them warme amongst it; foreseeing also, that one deceiues not himselfe with such sluggishnes, in leauing there to much.

The tables often made cleane.

Vnawares somtimes violent blasts of after stormes returnes, against the attempt, and course of the season, very offensive to our Wormes. These accidents are remedied, by keeping curiously shut all the open partes of the lodging dores and windowes euen to the least: and in warming it within, with whot coles in diuers places. The slouth of the gouernour hath laid this taxation on our Wormes, that they are esteemed stincking, wherefore many abhorres them; Those are the casting of their skinnes, and their dead carcasses, intermingled with the litter, made with the residue of the leaues which the Wormes smelles of, from whence proceeds al the stincke which one findes in the chambers: not of these noble creatures, the which of themselues smels nothing at all, no not their very dung, no more then sand, hauing naturally in as great detestation filth & infectiō, as they loue sweete and good smelles, vsing the order afore mentioned,

Remedies against vnexpected coldes.



tioned; one shall not onely gouerne these delectable cattell with profit, but their habitation made pleasant, and sweete smelling as the shop of a perfumer shall be found a place agreeable for good conditioned folkes. So will it be for Ladies and Gentlemen, for whom these excellent creatures trauaill.

**Necessarie  
maximes.**

That then the gouernour of our Wormes strue to be diligent in his charge; that he suffer not inconsiderately his cattell to bee visited of all commers, with too much libertie, for feare that by fraud, some mischance happen them: that he keepe the lodging cleane; that he spare not perfumes, for to bestow them fitly; that he be scrupulous of the leaues, not to distribute them to the Wormes, but such as bee perfectly good; for this cause that hee giue commande to the gatherers neuer to goe to worke before they haue washed their handes, and that he haue an eye vnto it: that he suffers, rather his little beasts to be a hungerd, then by impatience, to feede them with leaues ill qualified.

**The requisite  
order to re-  
moue the cat-  
tell.**

In taking away the litter all at once, the cattell is remoued from one place to another, to their great contentment. For to do that commodiously, at one end of each skaffold shall be left an emptie place for to put the Wormes on, that one shall take adioyning to that; in as much of the breadth of the table, the which by this meanes being emptie, will receiue the Wormes of the neighbouring part, and so of those that follow, wherby all the continuance, in the skaffold wil be vncouered, and couerd againe, course after course by portions; after the manner of drying hay in meddowes, ouerturning it, the full part filling the

the emptie. So without carrying the cattell far, they shall be gently put neere their lying; and this will be without touching them at all, for feare to offend the, because of their delicatenes; if at the instant that one would change them, from one place to another, one giues them meat; for it behoueth not but to take the leaues, at which so soone as euer the Wormes shall be fastened, to lift them vp, & without resting them in any place, to lodge them all at once where one desireth. It will be needfull to dispose the tables in such a fashion, that without shaking by seperated pieces, one may easily take them all out, and put them on the skaffolds againe, to make them easilie cleane. For by this meanes, pulled out of the skaffolds as drawing tilles one after another, one shall strike them against the floure, to the end to discharge them of filth: afterwards one shall sweepe and brush them perfectly well.

In measure that by age the Wormes increase and grow great, they go fro day to day occupying more place; wherefore it is necessary to keepe ready fresh tables, to the end to receiue those, which you shall seperate from the throng, and to put them all at their ease, for to fructifie very well together. For it is a thing well experimented, that a few Wormes fedde at large, makes more silke then a great number at a strait. You shall cause the tables to be rubbed with vineger, or with wine before they bee put on, and with sweet herbes to encourage them. As also they are delighted with the sinell of leekes, garlicke, or onyons, if you accustome them to it in their youth; against the opinion of those which hold that these

So much the more longer that the Wormes liue, so much the more space it behoues to giue them, and to rub the tables with wine &c.

strong



# 64 The perfect use of Silke-Wormes,

strong smells hurt, hauing not wel experimented the, this doubt being sufficiently cleared by prooffe; and you shall not only reioyce your Wormes by agreeable smells; but you shall succor them in the most part of their malladies. Touching which wee will speake of their diseases, and of their remedies.

The causes of the maladies of the Wormes and their remedies.

The extremities of the colds and heates, the too much or too little feeding; and the feeding them with naughty leaues, are the principall causes of the extraordinary malladies of these creatures. If they be annoyed by reason of cold, one shall succor them by warmeth in shutting the lodging, as before in perfuming it with frankincense and other sweete matters: to the which perfume some addes lard and sausages cut in little slices, the smell also of good wine, stronge vineger, and *Aqua-vita* comfort these creatures hauing caught cold. If on the contrarie they are ouercharged with heate, you shall recouer them with fresh breath in opening the doores and windows, for to giue entrance to the ayre and windes, passing through the chambers and halles, breathing the inward parts to the great contentment of the Wormes, setting them in good liking by this only and little remedie. The lodging being not so well disposed as is necessary, the Wormes shall be caried by tables forth into the ayre, to make them gather breath, halfe an houre before Sunne rising. The diet is the true means to heale those, which by too much feeding are become diseased; one shall giue them nothing for two daies together, the which being past, they shall be fed very moderately, and a little at once. As also little and often it behoueth to giue the meate,

meate, which through famine are become languished, for to restore and satisfie them, without overgorging them. The disease is much more difficult to cure, of those which haue bin fed with ill leaues, as with yellow, spotted, or too young. For oftentimes of this, as first hath bin said, there happens the fixe, and of the latter the plague most assuredly. Of this disease the Wormes becomes all yellow and spotted with blacke brufings; which you perceiuing neuer so little, faile not to remoue them diligently into another chamber and separated tables, for to assay to saue them by good handling, or at the least to shunne the contagion from the rest of the flocke. But hold for desperate the healing of those which with the markes aforesaid, you shall see to be bathed on the belly, by a certaine humor flowing in that part of their bodies, which you shall take from the rest, as meate for poultry. As perfumes helpe to cure all the maladies of these creatures, so to remoue them from one chamber to another, is generally healthfull for them, by such change being restored to wonted vigor. The Wormes will not fall into any or few of these diseases, if their gouernour handles them with skill and diligence aforesaid; in which besides the hazard of losing all, is spared the trouble: being much more easie to preuent these maladies by foresight, then to cure them by medicines. At which one shall first leuell, to the end that by negligence, one be not deprived of the hoped-for benefit of this food. Carefulness being most requisite in the managing of these notable cattell, which constraineth them that haue them in charge, not only to be neere them all

A very dangerous disease, and

This heere incurable.

The profit of curious diligence.



## 66 *The perfect use of Silke-wormes,*

To drive a-  
way Rats, the  
destroyers of  
our Wormes.

the day, but to bestow a good part of the night, to succour them at all occasions, the which curiously one shall endeavour. The Mice, Rats and Cats, doe great spoile to the troope of our Wormes, when they can come by them, eating them with great appetite as most exquisite delicacies. Against such tempests, for a singular remedie, one keepes lights during the night about the Wormes, whereby the inner part of the lodging being lightned, the rattes and cattles goe not but with feare. And are at the last chased and feared away, by the sound of little bells, which one rings there. Both with the one and the other one shall be fitted, disposing the lampes in the places requisit, in diuers partes: also the bells and other engins making noise, put in a place easie to remoue them. But all that is but in vaine if often times in the night one goes not round about the cattell; to which purpose the lights will serue, which lightning the roome, will be a meanes to goe and come easily through all. In the meane time, you

That no oyle  
touch the  
Wormes.

shall beware that any oyle fall not vpon the Wormes. For there needes but a drop, to offend them much, through the maladies that the oyle engenders them. Preuenting the which, one shall not vse any oyle to watch with, but in lampes fastned against the walles: and for portable light to tend the creatures, tallow, or waxe candels, or of other substance according to the countries.

To make ready the matter,  
for to spinne  
on their silke.

By such managing, both of the foode, and hand, within seuen or eight daies following, after the last casting their skinnies, or drowlines, your Wormes will dispose themselves to pay the expence of their

dict.

diet. The which foreseeing in fit time, you shal cause to be prepared necessarie rods, for the climbing vp of the Wormes, to vomit their silke, fastning their webs vnto the. To assemble the Worms (so called in such worke) many things are good, but not any greene bowes, for danger to offend the cattell, they waxing fresh, placed in the worke, as they will doe, the time being giuen to raine. The most proper matters, are Rosemary, Kneeholme, cuttings of Vines, Broome, shoots of Chestnut trees, of Okes, Osiers, Salowes, Elmes, Ashes; & in summe, of all other trees or flexible shrubs, hauing not ill smelles. In application of the rods, one goes to work diuerfly, according to the fundrie aduises of men. After hauing cuened the foot of the rods or branches, to the end so much the lesse to trouble the place, one shal ranke them directly, as rankes of columnes equally distant a foote and a quarter, little more or lesse, crossing the tables from one side to other. The feet of the twigs shal ioyn to the tables beneath, and the heades shall meete the tables aboue, vnder which, their length shall bee bended, wherby wil be fashioned the arches. By such disposition, the stages will resemble, like galleries made of arches, with many stages surpassing one another, as Amphitheaters a thing very pleasant to behold. The emptie place, betweene the two arches ioyning to the table aboue, shall bee filled with the sprigs of lauender, spike, thyme, and the like sweete smelling shrubbes; according to the commoditie of the countrie, for to serue doubly. For in this intermixing of twigges, the Wormes shall haue choise of place, firmly to fasten their rich matter, as to that



they are very difficult, going to it fantastickly, and there they are as it were perfumed by the agreeable sent of the shrubbes, whereby they trauaile freely in such place to the profit of the worke.

At the seuenth or eight day then, that your Wormes shall bee come forth of their last change or disease (such a disease being verie properlie called a chaunge, through the great sicknes they then endure, more vehemently then in any other, oftentimes to die) you shall remoue them to the tables, so furnished with twigges without looking to shift their places or litter any more. There you shall feed them as accustomedly, that is to say, with all abundance, without denibiting them till then, that you shall see the most lustiest Wormes to enter the roods, which is when they take their course to get vp; which perceiued by their extraordinarie countenance wandring through the troope, in skattering, without making account of the meate, and a little after you shall see them to clime by the feete of the twigges, forsaking their foode, going to vomit, or rather to spinne their silke. From that time you shall begin to diminish their ordinary, day by day, in the end for to giue them nothing at all; when they shall haue vnited and grafted with the twigges, all the troope will haue forsaken the table, or few will faile, none remaining behind but the latter and idle ones. In this time is knowne those which were long a hatching, by climing vp the last: being a necessary cōsequence, that the first comming forth, are the first spinning. And as there is no great reckoning to bee made of the hatching later; no more behoues it to  
make

make account of the idle Wormes that clime not. Wherefore at the ende of three or foure daies, that the first shall haue taken the twigges, you shall take away the rest from al the tables, for to assemble them in one, and so to nourish them till their end. So the forward and the backward Wormes will spinne their filke: the which they cannot doe fitly when without such distinction the latter should cast themselves on the worke of the formost, with great losse, and this apparent daunger, that before these had ended their work, the Butterflies of the formost by such longnesse, alreadie formed in the codde, should not come forth to the detriment of the enterprise. Two or three dayes the Wormes haue to perfect their coddes, bladders, or bottoms, (diuersly named according to the places) at the end of which they are vtterly finished, as one shall know in curiously approaching neere the with the eare; For as these creatures make some little and pleasing noyse in feeding, so likewise doe they make a sound in fashioning their coddes; the which noise they giue ouer, ending their worke.

To gather the idle ones together.

How long time they bestow to spinne their filke.

Behold the filke made, this is not for all that the end of the labour of the Wormes; for it is by the graine that they end to worke and to liue, finishing their life by their deere seede which they leaue vs, for to renue themselves by euery yeere, and by this meanes to conserue for vs the possession of the filke as to their heires. Miracle of nature, A Worme to be shut vp in his bottom of filke, is there transformed into a Butterflie! He imployes ten dayes to that, at the end of other ten dayes he comes forth through a hole



hole for this effect piercing the cod, from whence dis-  
 imprisoning himself, he returns to the view of me,  
 but that is in his new figure of a Butterflie: males  
 and females accouple themselves ioynt together,  
 the femall layes her egges or graine; ending so their  
 labour with their liues. And that which augments  
 the wonder, is the long abstinence of this creature,  
 living twentie three daies without taking any suste-  
 nance, also deprived of the light, for the time which  
 hee remaines within his bladder, as in a close pri-  
 son.

An admirable  
 creature.

But to enter into discourses on the qualities of  
 this animall, to the which are manifestly wanting,  
 flesh, blood, bones, veines, arteries, sinewes, bowells,  
 teeth, eies, eares, skales, back bones, prickles, feathers,  
 haires, except on the feete a little fine thrum, resem-  
 bling downe, and other things common almost to  
 euery earthly, waterie, & airie creature: it would be  
 too much to philosophise, such contemplation ra-  
 uishing humane vnderstanding, euen in this, that  
 this Worme one of the abiects creatures of the  
 world is ordeined of God to clothe Kings and Prin-  
 ces: in which is found, sufficient argument to hum-  
 ble themselves. And this same one particularitie is  
 to be marked, that shee yeelds the rich silke all spun,  
 readie to be wounded off, vomiting quite made, the  
 thread; whereof shee composeth her bottom, with  
 extreame care and affectionate labour. The which  
 is not communicated neither to wooll, cotten,  
 hempe, nor flax, wherewith men apparrell them-  
 selves; but with skill they must prepare them for to  
 bring them to the point to be spunne.

Here

Heere it is to purpose to shew the subtile arte that man hath inuēted, for to repaire the defect of graine and seed of Silk-wormes, happening that it should be lost. A thing drawne from the secrets of nature, and found out with great curiositie, like to the production of Bees; whereof the Auncients haue written (as heretofore I haue said.) In the spring-time a young calfe is shut vp in a little darke stable, & there fed only with the leaues of Mulberries twenty daies, without drinking at all, or eating any other thing during this time; at the end of which, it is killed, and put in a tub there to rot. Of the corruptiō of his body comes forth abundāce of Silk-worms, which one takes with the leaues of Mulberries, they fastening vno them: the which fed, and handled according to arte and common fashion, bring forth in their times, both silke and seed as others do. Some making short the expence and the way of such an inuention, haue drawne this heere. Of the legge of a sucking calfe, a slice waying seuen or eight pounds, and laid to putrifie in a fresh celler, within a vessell of wood, amongst the leaues of Mulberries, to which the Silke-wormes comming forth of this flesh, take hold on: from whence being taken, they are handled as aforesaid. I offer you these things vnder the credit of another, in attending that the prooffe giues me matter to assure you that which it is: Complaining my self in this place of our predecessors, with *Pliny*, as he did of his, in this which they said, that a vessell of Iuy could not containe wine, and not one of them had experienced it. I represent you these things, I say, for that such creation of Silk-wormes happening to be true,

A strange  
meane to be  
provided of  
Silk-wormes  
without seede.

The know-  
ledge of the  
nature of  
the Wormes.

Of which  
four the silke  
will be  
The distill  
of the silke  
of the silke



true, and thereby finding the advantage we may be  
 freed from the trouble to send to seeke the feede in  
*Spaine* and elsewhere, reuuing the care to provide it  
 euery yeere. If there be question to discourse there-  
 upon, I shall say that such engendering of Silke-  
 Wormes is not incredible, seeing that all corruption  
 is the beginning of generation. We see daily, that of  
 putrified things issue diuers vermines, according to  
 the diuers qualities of the matters. Of the Bull, and,  
 according to writing, of the Lion, is engendred the  
 Bee: of the Horse, Hornets: and of humane flesh,  
 the Serpent. The Auncients hold, that two fundrie  
 sorts of Wasps are engendred of the Horse and of  
 the Mule; through the diuersitie of these two crea-  
 tures, as I haue said in the precedent chapter, and of  
 Asses, Drones. And whether they be meats, cloathes,  
 household stufes, euen vnto woods, euery where in  
 the land, in the water, and in the ayre, in moist places  
 and drie, one findes that nature creates little beastes,  
 wormes, and gnats, with so much admiration, as the  
 Creator is admirable.

The know-  
 ledge of the  
 maturity of  
 the Wormes.

Of what co-  
 lour the silke  
 shall be.

The distincti-  
 on of the sex  
 of this crea-  
 ture.

Some few daies before the Wormes begin to  
 clime the twigges, to vomit the silke, they manifest  
 their purpose by the brightnes of their bodies, which  
 becomes shining and translucent, as grapes waxing  
 ripe: by which point one knowes somewhat after  
 the colour of their bodies, the colour of the silke,  
 which they wil make. Then one marks the Wormes  
 to be diuersly coloured, neuerthelesse distinctly, with  
 yellow, orange, carnation, white and greene, which  
 are the five colours of the silke. Likewise one dis-  
 cernes the males from the females; the pretended  
 eyes

eyes of the Wormes will satisfie to such curiositie: for the colouring of those of the males, is more apparent to black, than that of y<sup>e</sup> females, the which in that part haue but very small markes, & fine streakes. As for the colour of their bodies, according to the climats one is to be preferred before another. The most part of the seede of *Spaine* brings forth white Wormes: and such graine being more worthy than any other in these climats, we prise also the whitest more then the blacke, or gray, or any other.

The Wormes are of diuers colours.

After, with the same diligence whereby we haue managed our silke, finally we must reape, seeing that this last action cannot suffer delay without notable losse, no more th<sup>e</sup> any other harvest of the yeere. The refuse silke is the first matter which the Worms vomit, of which they make the foundation of their building. They fasten it firmly with much art betweene the rodde, which loden with these rich coddes resemble exquisit trees, garnisht with Apricockes, sommer Paires, and other precious fruites. There one takes the bottoms in perfect ripenes, which is marked by the directions already giuen. To tarry longer then seuen or eight daies, to pull them from the twigges, would bee to put them to hazard, to conuert the silke into sleaue, for the leasure that one should giue the Butterflie to pierce his codde, to the end to go about his seed. Wherefore the most assured shall be, to begin within the sixt day after the climing vp of the Wormes. One shall take them off gently, without crushing the creature which is within, by that preuenting the spots of the bottomes, which happen by their broken bodies,

To withdraw the silke from the twigges and when.



74 *The perfect use of Silke wormes,*

The graine  
for seed.

with his  
mouth to the  
bottom

with his  
mouth to the  
bottom

and

The signes of  
the worth of  
the bottoms.

cōuerting the into so glie a humor, that afterwards  
it is impossible to diuide and winde off all the silke.  
Prouiding for the time to come, one shall aduise  
to furnish himself with seed for the conseruation of  
the brood. I haue shewen the scope of this Worme  
to be, after hauing weaued the silke, to goe to laye  
her egges, to perpetualize her selfe amongst vs. For  
which it behoueth, to limit & bound his natural af-  
fection, for feare that leauing it to do at pleasure, in-  
stead of silke, which wee haue of this busines, wee  
should haue nothing but sleaue. Because that the  
Worme being conuerted into a Butterflie to laye  
the egges, as I haue said, comes forth of the bottom,  
which for such cause he pierseth. Being thus bored  
the threds of the silke are found broken, by conse-  
quent indeuidable, and not to be wonde off, wher-  
by one is constrained to carde such matter as wooll,  
afterwards for to spinne it: which by this meanes  
losing his glosse wherein consisteth the chiefest  
bewtie of the silke, wanting the same is turned into  
sleaue. For to preuent the which losse, and also not  
to haue need of so much seede, as the nature of the  
Wormes would furnish vs withall; of one part of  
the coddles or bottoms, we will serue our turnes for  
graine or seede, leauing the other for the win-  
ding of the silke, as hereafter shall bee showne: As  
for to haue faire corne one chuseth the best eares, to  
sow; so we will chuse for seede, the best qualified  
coddles, without fearing so much the present losse  
of piercing the bottoms, as to desire the ensuing pro-  
fit. For such cause let vs select, of the clues or bot-  
toms, the chiefest, the greatest, the hardest, the  
weightiest,

weightiest, the sharpest pointed: of carnation or flesh colour, tokens of value. In such quantitie as one shall desire, according to this reckoning, that an ounce of seede commonly issues from a hundred females, seldome more, by the accoupling of the like number of males. By curious finding out some hold that euery femall laies a hundred egges or graines; and therefore an ounce of seede to containe tenne thousand graines: but for the inequalitye of the seedes and waights, that cannot euery where agree, nor in euery sort of grain. Some for sparing, put two femals to one male, beleeuing that it sufficeth: but because of the incertentie of the successe, and the great carefulnesse requisit in this place, for to couple them together, from time to time, the best shall be to rest vpon that which experience hath authorised for good, that is, in putting to so many males, as females. The coddles inclosing the male Butterflies, are slender, and long; those whereout the females come, are thicke and great in the midst: and both of them more sharpe in one place then in the other, agreeing to the figure of an egge. The mossie ones at both endes, hauing not any point, or very little, are not to be desired; but rather the race to perish, for the difficultie that one findes to wind off the silke, it being not possible, how one should handle them, to wind all the silke out of the cawthern, by reason of certain snarlings which happens in the bottoms which are of this shape, (not in others) hindring them to diuide, a thing very considerable, both for the quantitie of the silke, and qualitie: for neither so much silke, nor so faire will it yeeld, being mingled with

Of their sex.



The meane  
to gather the  
seed.

such bottoms as if it came only of the pointed ones. The coddles so chosen, shall bee threaded, not in piercing the a crosse, for feare to let them take wind, and consequently to make the vnprofitable, but onelie in passing the needle, through the first downe, called sleaue; of which shall be made little chaines, each composed of so many males as females: One shall hang them on wodden pinnes, in a chamber, more coole then hot, neuerthelesse drie, for the Butterflies at their ease to come forth of their coddles, to engender together males and females, and there in dying for company, to lay their egges; so ending their liues. It is necessarie to helpe a little to the furtherance of these Wormes, being then vpon the period of their age, to the end to manage the seede well, otherwise much of it would be lost. By quantitie that one shall see the Butterflies come forth of the bottoms, one shall accouple them, male and femall, if already they bee not of themselves, to which they shew themselves very diligent; and being ioyned together, they shall for the last time, be set to rest on Wal-nut leaues, readie spread vpon a table vnder the coddles, there for to end their worke, the femall laying her egges or grain, on the leaues of Wal-nuts: fro whence afterwarde, although they bee firmly annexed vnto them, yet are they easily taken off; for that the leaues being well dried, are easily betwene the handes rubbed to powder, and that blowne away with the wind, the seede remaines cleane as one desires. Some with great reason, spread not Wal-nut leaues vpon a table; but make little bundles, which they hang adioyning to the chaines of coddles; sit-  
ing

ing that the femals lay their seede more easie being  
hanged over the males, then laine flat vpon a table.  
For to make the Butterflies empty their graine vpon  
paper according to the vsage of some, is not the pro-  
fit of the work, because one cannot take off the graine  
but in scraping it with a knife, whereby much of it is  
broken. But yet also those goe more ill to worke,  
which put their Butterflies vpon linnen; for so  
much, that the seed fastening it selfe to it very firme-  
ly, cannot be taken away, but with losse; which for  
to shunne, one is constrained to keepe such linnen,  
til the spring time, & then in warming it to make the  
graine to hatch, and from that same to take the  
Wormes. By such order one cannot vse the prooffe,  
of wine, nor peise the egges to know what quantitie  
of Wormes you will charge your selfe with; by  
which, confusion may happen in the feeding them.  
Neither the leaues of Wal-nut, nor paper, nor lin-  
nen, are not so proper to receiue the graine com-  
ming from the creature, as chamblet, or burato, for  
that, that vpon stufes, (the graine is assuredlie fast-  
ned) so is it in like sort taken away without any vio-  
lence or losse: for it is only done in rubbing gentlie  
the chamblet, or burato, betweene the handes, by  
which meanes it is easily taken off.

The bottoms which shall haue serued for seede, Sleane.  
cannot afterwarde be vsed, but in sleane; not be-  
cause of the substance which alwaies remaines one;  
but for the breaking of the thred which hath been  
cut by the Worme, in making there a hole, to haue  
passage out of the prison, as hath been said. Of which  
the *Spaniards* taking heede sparing the best qualified  
coddies,



78 *The perfect use of Silke-wormes,*

coddess, for to be wounde off, employ for seede the double, and triple ones, without great losse of silke, if otherwise they bee of good marke. So can they not very well wind them off, because of the multiplicite of creatures; the which spinning their silke in common, make the worke very confused, whereby they are put in the ranke of the pierced ones for sleaue. The being double or triple is not the fault of the Worme, but rather of lustinesse, and supplenesse. Sometimes also it happens by default of the place, which being too much thronged, constraines these creatures, in vomiting their silke to heape it one vpon an other, confusedly assembling two or three Wormes, and more, in one bottome without distinction of male or femall; though that ignorantlie some say, that a double cod cannot cōtaine two creatures of a diuers sex. The negligence of the gouernour causeth oftentimes such disorder, when taking not neere heede at the beginning of the climbing of the Wormes, he leaues them to wander where they wil: to which he shal looke to, in guiding the conveniently; and likewise shall relieue them which fall to the ground: he shall put the short and idle ones into little cornets or coffines of paper, thereby to facilitate their work, guiding them to perfect their bottom: without which diligent curiositie, many Wormes are lost, bee it in smothering, or in vomiting their silke to ill purpose, amongst their litter. Of euery double, or triple bottome, comes forth but one Butterflie, though it haue many within, inso-much that being not able to bee all ripe at once, the first, which comes forth in piercing the cod by his

The double  
and triple  
ones,

The short and  
idle Wormer,

his issue, giues vent to the other Butterflies; by which catching colde, they remaine imperfect and die, or when that by their meeting together, their common ripenesse and issue happens in the same point and moment, the which is not seene but very rarely.

For the abundance and goodnesse of the silke, it is to be desired, that the bottoms bee cast into the bason, for to winde them immediately hauing pulled them from the rodde, without any stay, seeing that so freshly taken, all the silke comes off easily, & without violence or any losse; the which one cannot hope for of the bottoms kept some time, because that the gumme wherewith the Worme fastens her threeds one against another, being dried doth so harden the bottome, that one cannot winde it but with great difficultie and losse, whereby some portion of the silke rests in the bason, and neuer remaines so faire as that which is newly and easily wonde vp. Besides And wherfore by such festination, is spared the feare that the Butterflies should spoile the worke, there being not giuen them the leasure to bore the coddles for to come forth. But because that within seuen or eight daies, one can very hardly winde off all the silke of a reasonable feeding, for the great number of worke men that for that one should employ, one shall keep both the one and the other of these two waies, that is, in setting themselues a work to winde off the bottomes, so soone as euer one shall perceiue to bee a number of perfect ones, casting them directly from the twigges into the bason, hauing first pilled and bared them of their sleaue, without other delay. And

The winding of the silke would not be delayed.



## 80 *The perfect vse of Silke-wormes,*

The means to  
kill the Butter-  
flies in the  
coddles.

to kill the Butterflies of the rest which one is constrained to keepe, to the intent that the creatures being dead within, the coddles remaine exempt from feare to bee bored, and by consequent reserved for good silke, may atted the leasure of the winder. That is done in exposing and laying the coddles in the sunne, the heate of which stifles the creature in his proper worke: but you must vse a meane, for feare of burning the silke. Three or foure times in sundrie daies the coddles shal be set in the sun, & at each time they shall remaine two houres before noone, and as much after, to the end that the great heate of that part of the day may readily stifle the Wormes, before they be metaphorised or changed into Butterflies: which will come to passe in spreading the bottoms vpon sheetes, and oftentimes remouing them to make them all feele it, without excepting any from the heate of the sunne: neuerthelesse to take heed to the charge, that by too rude handling one bruises not the Wormes within the coddles, for feare of stayning the silke with the matter of their bodies; the which (as hath been said) doth so glue together the silke, that it is impossible afterwards to winde it off. Therefore very softly oftentimes a day one shall remoue them from one side to another, afterwards they shal be heaped warmly together, and wrapped vp in the sheetes, and so carried into a fresh chamber, not into a danke celler, as to il purpose some do. The sunne failing (as often times it comes to passe, that the skie is clouded) you shall vse an ouen moderately heated, as it shall be two houres after the drawing of bread; within the which by sackfuls, one shall

put

put the coddles, which shall belaid vpon boords, for feare that the stones of the ouens bottom should burne them. There they shall remaine an houre, or an houre and a halfe, in reiterating the manner, till that you shall know the creatures to bee certainly dead, the which you shall be resolued without great losse, in reding one of the most suspectedst bottoms, for to see the inner part. In the meane time you shall take heed, not to burne your silke by too vehement heate, foreseeing which, the most sure way shall bee to heate the ouen a little at once, and to returne so much the oftener, then too much, and so hasting lose all the worke. This smothering of the Wormes, or Butterflies already formed, is of great import, for going to it either ignorantly, or retchlessely, not taking heed whether that the Butterflies should come forth of the coddles, according to their nature, or not being able at all to take the ayre, should remaine in the way, after to be forced to passe further, nibbling the inner part of the coddles: of the which little silke can come afterwards, and that yet not very wel qualified. Ill comparable to that of the Rats in this point differing, that the Rats gnaw the exterior of the cods, for to eate vp the creature which is there inclosed; and the Butterflies the interior to free themselves. The bottoms so prepared shall attend the leisure of the winder. But this shall be no longer then that without delay you may conserue the silke in his naturall beautie, without losse of waight: in the one and in the other, being so much the more defrauded of it, as more longer the coddles shall bee kept. For that euery day the hardnes of the bottoms augmenting.



ring. In like manner is augmented the difficultie of winding it off; wherby the silke breaks with diminishing the quantitie: and by long keeping, the qualitie is empaired. To these losses, diligence remedies, so that there be not giuen too much time to the bottoms to ouer-harden, the silke wil be wonde off well enough: the winding whereof shall be continued, without diuerting to other vses, vntill the last bottom. So shall you entirely gather from this food both silkes and sleaues, without any losse.

To sort curiously the cods, for to winde off the silke,

This done, the bottoms shall be sorted, setting apart the pierced and spotted ones, on one side, for to make faire sleaue, as being of the most fine substance: and of the other side, the entire, simple, and cleane ones to wind off the most faire and pure silke; of all the which, for a foregoing, one shall draw off all the downe in pulling off the out-side of the bottoms, of which one shall make course sleaue, for that this is the reffuse and skumme, which the creature vomits at the beginning of his worke.

Of tooles and engines for winding off, and other obseruations.

Of the fashion of the furnaces, basens, wheelles or Rices, named at *Paris* deuidors; & at *Tours*, winders-vp: but how one ought to turne them, if it shall bee by the hand, by the foot, or by the water, for the winding off, there is no need to speake of in this place: the work-men almost neuer agreeing together, euery one hauing his particular practise. Only I will say, that the basens of lead makes the silke more pure, than those of copper; because of the rust that this mettall is subiect vnto, though water remaines in it but a little while, from which the lead is vtterly exempt. That the wheelles ought to bee great for the forward-

forwarding of the worke, the which shall be made to winde off two skeanes at once. That the fire of the furnace be of char-coales, or at the least of very drie wood; to the end that the fire bee without smoake, as well for the commodity of the winder, as for the bewty of the filke, the which through his delicatenes is easily blacked in the smoak. So is it in the libertie of the work-man, to winde diuerslie the filke according to the workes wherein one will vse it. But in so much that the master of the worke principally desires it, for to sell and conuert it into money, the best shall be to do it the fairest that one can, hauing regard to the facultie of the matter, and the desire of the buyers.

Of the bottoms come of Wormes of a good race, The taske of the winder. and fed with the leaues of white Mulberries, it shall suffice that the work-man winds off a pound and a halfe by day *Paris* weight, little lesse, for by such limit it will be small enough to be appropriated to all vses, and for that more vendable, than being grosser. This same shall be wonde of the single and best bottoms, according to the sorting aforesaid, reseruing the double and spotted ones (if one will not mingle the with the pierced ones, for sleave,) to make certaine separated skeanes, that the Merchants take at the same price as they do the fine filke, such course stuffe being profitable to them in some workes. But this To distinguish the filkes. would bee to intermingle all the filke, and by consequent to debase the price, if without distinction one should wind off all the bottoms together. The which the Merchants fearing, at the sight of the grosse skeanes, buy willingly all the filke, by that assuring

M 2

them-



themselves not to be any intermixed confusion, nor fraudulent mingling, in the winding vp. The double and soyled ones, are very hard to wind vp, and yet howsoever one takes them, they yeeld but course silke: the tufted ones being also in the same predicament, as hath bin said, which by reason of that you may mingle together. The difficulty of their winding vp shall be asswaged by sope, put in the bason of water with the bottoms; sope also helps to wind off the old coddies, hardened by time, in mollifying the natural gumme, which holds glued together the threeds of silke, the which by this remedy are easie enough to manage. The work-man shall make two skeanes of silke by day, or foure, if to that his wheele and his other skill be appropriated; for that the silke shewes fairer in little skeanes, or skarfes, than in great ones; as that by bestowing more fastenings thā they do breakings of the silke, but in one only skeane: by this meanes they sell it for as much as the other; seeing that it is the commodity of the Merchāts, which put it in worke, being more proper to be giuen to be wonde in a little, than in a great volume.

The remainder of the winding which cannot be wonde with the skeanes, as the breakings off of the silke, and that which will not bee got off, resting in the bason, shall be husbanded for to be wrought in rapistries, for Carpets, Chaires, Beds, and such like moueables of the house; intermingling these matters with wooll, hempe, flaxe, cotton &c. As also of good sleaves, with fine silke, shall bee made stufes, faire and profitable to serue for the vse of the house.

This is the manner to gather the silke, vnknowne  
of

of our Auncestors, through want of enquiring it out : hauing of long time beleueed, as from the father to the sonne, that this creature could not liue elsewhere, but in the countries of his originall. But time, the master of Arts, hath shewen how much the reasonable seeking of honest things is worth: frō such curiositie, being growen the true science to gouerne this cattel, which at this day are managed with as little hazard, as the grounds are sowed, and Vines plāted, for to haue corne and wine. So often times it comes to passe, to finde that which one seekes ; God blessing the labour and trauaile of those which emploie their wits, not only for themselues, but also for the publike benefit.

Such is the beginning of the Silk-worme, such his gouernment, such the effect and issue of his feeding, a creature most admirable for many causes, whereby not a little is giuen to the conseruation of his race ; when with no expence and small care it is kept during the yeere, as a dead thing, in his season for to take againe a new life.



themselves not to be any intermixed confusion, nor fraudulent mingling, in the winding vp. The double and soyled ones, are very hard to wind vp, and yet howsoever one takes them, they yeeld but course silke: the tufted ones being also in the same predicament, as hath bin said, which by reason of that you may mingle together. The difficulty of their winding vp shall be asswaged by sope, put in the bason of water with the bottomis; sope also helpes to wind off the old coddies, hardened by time, in mollifying the natural gumme, which holds glued together the threeds of silke, the which by this remedy are easie enough to manage. The work-man shall make two skeanes of silke by day, or foure, if to that his wheele and his other skill be appropriated; for that the silke shewes fairer in little skeanes, or skarfes, than in great ones; as that by bestowing more fastenings thā they do breakings of the silke, but in one only skeane: by this meanes they sell it for as much as the other; seeing that it is the commodity of the Merchāts, which put it in worke, being more proper to be giuen to be wonde in a little, than in a great volume.

The remainder of the winding which cannot be wonde with the skeanes, as the breakings off of the silke, and that which will not bee got off, resting in the bason, shall be husbanded for to be wrought in rapistries, for Carpets, Chaires, Beds, and such like moueables of the house; intermingling these matters with wooll, hempe, flaxe, cotton &c. As also of good fleaves, with fine silke, shall bee made stuffes, faire and profitable to serue for the vse of the house.

This is the manner to gather the silke, ynknowne  
of

of our Auncestors, through want of enquiring it out : hauing of long time beleued, as from the father to the sonne, that this creature could not liue elsewhere, but in the countries of his originall. But time, the master of Arts, hath shewen how much the reasonable seeking of honest things is worth: frō such curiositie, being growen the true science to gouerne this cattel, which at this day are managed with as little hazard, as the grounds are sowed, and Vines plāted, for to haue corne and wine. So often times it comes to passe, to finde that which one seekes ; God blessing the labour and trauaile of those which emploie their wits, not only for themselues, but also for the publike benefit.

Such is the beginning of the Silk-worme, such his gouernment, such the effect and issue of his feeding, a creature most admirable for many causes, whereby not a little is giuen to the conseruation of his race ; when with no expence and small care it is kept during the yeere, as a dead thing, in his season for to take againe a new life.

**M 3.****THE**





# THE PREPARATION OF THE BARKE OF THE White Mulberrie, for to make linnen cloath *on, and other workes.*



He reuenue of the white Mulberrie, consists not only in the leafe for to haue filke, but also in the bark, for to make ropes, course cloaths, mean, fine, and thinne, as they will, preparing the barke so, as shall be shewen hereafter; by which commodities the white Mulberrie manifests it selfe, to be the richest plant, and of most exquisite vse, whereof we yet haue had knowledge. Of the leafe of the white Mulberrie, of his profit, of his handling, & the manner of gathering the filke, hath been heretofore discoursed at large. Heere shall be presented the barke of the branches of such a tree, whereby I will represent you the facultie, since it hath pleased the King to command me to giue to the publique, the inuention to conuert it into cords and linnen, according to the proofes which I haue shewen his Maiestie. And although we be not constrained to beg cloaths of our neighbours, (as till now we haue done filke) in hauing enough for our prouision, yet for that the  
master

master shall not leaue to imploy this benefit, which God so liberally offers him, the same being in the Prouinces of this kingdome, where Flax & Hempe are so rare, as of such there is more than of the other, it will be found so much the more commodious, as the constraint will be lesse to disburst money, for the buying of so necessary furnishments.

Many exquisite and rare knowledges are come to light by accident. The Lute an excellent instrument of Musicke, is come of the curiosity of a Physition, which making the Anatomy of a *Tortoise*, for to see the interior, and placing of his parts, handling of it dried, touched vnawares some sinewes stretched within it, the which making an agreeable sound, by meanes of the hollownes of the shell, resolved by that occasion to make a new instrument, since called in Latin *Testudo*, of the name of the creature. The almost miraculous science to graft fruit trees, is proceeded of a shepheard, when setting vp his bower, he thrust without thinking of it, a little liue braunch of a tree within the body of another freshly cut neere the ground, where it taking shewed the admirable marriage of these two diuers plants afterwards so sought for, and refined by new additions. So it happened to me touching the knowledge of the facultie of the barke of the white Mulberrie. For by the easie separation frō his wood, being in sappe, in hauing caused to be made cords (after the imitation of those of the rinde of *Tillet*, which they make in *France*, euen at the *Louure* in *Paris*) and put to drie at the top of my house, were by the windes throwne into the ditch, afterwards were taken forth of the muddy



muddie water, hauing remained there foure daies, and washed in faire water, and then vntwisted, and dried, I saw appeare the downe or thrum, the matter of linnen, like to silke or fine flax. I made these barks to bee beaten with mallets, to separate the sheds, which going to dust, left the gentle and soft substance remaining: the which barke, hetcheld and combde after the manner of hempe and flaxe, was made proper to spinne; and in ensuing, hath been wouen and reduced into cloath. More then thirtie yeers afore I employed the barke of the tēder shoots of whit Mulberries, to bind graffes in the skutchion, in steede of hempe, which they commonly vse in such delectable busines.

Behold the first prooue of the value of the barke of the white Mulberrie: the which accident, brought into art, is not to be doubted, but to draw good seruice from such inuentiō, the white Mulberrie being repleat with so many comodities, to the great profit of his possessor. The barke of *Tillet* besides that it serues to make ropes, as hath been said, is somewhat tractable to be made in clothes: but that is in very grosse work, as for to serue in wind-mill sayles, and such like things. The nettle yeelds an exquisit matter, wherof is made fine & delicate cloths: but there is so little of it that they cannot make other reckoning of it then for curiositie. There are also certaine other herbes and shrubbes yelding thrum or downe, but some so weake, others in so small a quantitie, some so grosse, and with so great difficultie to bee drawne off, that it is not possible to vse them to any profit, or to very little. It is not so of the white Mulberrie,

berrie, whereby the abundance of branching, the facilitie of disbarking, the goodnes of Thrumme or Downe proceeding from that, makes this businesse most assured: yea verily with very small expence the master shall draw infinit commodities from this rich tree. The worth whereof vnknowne to our ancestors hath remained interred & buried vntil now, as by the eyes of vnderstanding it shall be knowne, yet better by experiences. But to the end that they may make this businesse durable, that is to say, to draw off the barke of the Mulberrie, without offending it, this here shall be noted; that for the good of the silke, it is necessarie to prune, to cut, and dishead the Mulberries, immediatly after hauing gathered the leaues for the foode of the Wormes; neuertheless according to requisit distinction, as I haue demonstrated; whence the branches comming of such cuttings, shall serue for our intention: for that, that being then in sap (as in other time you must neuer put the bil to the trees) they will very easily disbark: and this shall bee to make profit of a lost thing, for else they should be cast into the fire. Likewise the same cuttings cannot but serue well; if they loue them no better, for the first, to vse them in fencings of gardens, Vines &c. where such branches are very proper, for their hard snagges, being drie and of long seruice, through which durableness they rot not in a great time; from whence finally taken, for their last profit shall be burnt in the kitchen.

And because that the diuers qualities of the branches diuersifie the value of their barks, whence the most fine proceeds frō the tender tops of the trees, the grosse ones from the great braunches already



hardned, the meane ones from those which are betweene both. Then when they shall cut the trees, be it in pruning them, disbranching or disheading them, the branches shall bee sorted, setting apart in bundels every sort, to the end that without confused mingling all the barks may be drawne off, and handled according to their particular properties. Without delay the said rindes shall be separated from the branches vsing the fauour of the sap, which passeth quickly, without which they cannot worke in this busines. And hauing bundled vp the barks, of all the three sortes a sunder, they shall be laide in cleane or foule water, as shal be fit three or foure daies more or lesse according to their qualities and places where they are, the trials whereof shall limit the terme, but in what part soeuer they bee, the tender and small would be lesse steeped, than the big and great ones; being taken forth of the water, at the approach of euening they shall bee spread vpon the grasse in a meadow, if conueniently you may, or elsewhere, exposed to the the aire, hauing vntide their fardels, for to remaine there all the night, to the end to drink vp the dewes of the morning; then before the Sunne lightes vpon them, they shall be heapte together, till the returne of the euening; then put againe in the dew, and taken from thence at Sun rising, as afore, continuing that ten or twelue daies, after the maner of flaxe, (and in sum) vntil then, that you shall know all the stuffe to be sufficiently watered, by the prooffe that you shal make in drying, and beating a handfull of each of the three sorts of the barks, laying those againe in the dew which shall not be ready enough, and

and withdrawing the rest, as you shal find by the cie.  
It hath been recited here before, that for to haue  
profit of feeding the Silk-wormes, with lesse then  
two or three thousand trees, the Mulberrie-yarde  
ought not to be enterprised; and that well for to go-  
uerne them, to the purpose to haue long seruice of  
them, it is requisit, that there be lopped euery yeere,  
the tenth or twelfth part, so by that there may be di-  
sheaded, euery yeere, from two hundred and fiftie,  
to three hundred Mulberries, which will alwaies  
yeeld betweene three or foure hundred burthens of  
wood & more. To which quātity, adding that which  
they take off from the trees immediatly after their  
disleauing in pruning & topping them, there will be  
abundance of braunches, and by consequent abun-  
dance of barke euery yeere, frō which wil arise much  
worke of diuers sorts, according to requisit fortings.

But yet the master of our worke shall not rest here  
but shall plant woodes of white Mulberries, to cut  
low the moitie of them euery yeere; for such pur-  
pose diuiding them into two partes, from whence  
he shall haue braunches delicat and young, the barke  
whereof will bee proper to make fine and exquisit  
linnen. And the said woodes will not be onely pro-  
fitable to furnish euery yeere, abundance of new  
barke, but also faggoting to burne; and poles for  
arbors in gardens, and to make hoopes for tubbes  
and barrels, chusing for this the greatest branches.  
Also to giue the leaues for to feede Silk-wormes, ga-  
thering them in the best aired and sunniest parts of  
the trees. And for the augmenting of good husban-  
drie, to feede an infinit number of connies, provided

The 12. chap-  
ter in the book  
of Husbandry.

that



that the woodes bee inclosed for a warren after the manner before described. So there will be foure notable commodities, which the master shall reape from these woodes: which for the spoyle that the connies may do in disbarking the feet of the trees in winter, as they doe all sorts of plants, a few excepted, he shal not leaue himselfe vnfurnisht of so profitable a beast. Wherefore somewhat to amend such a fault, helping the connies to meate, it behoueth not but to sowe oates in certaine places and great allies, which for such purpose shall bee left emptie in the woods, where the connies may feede during the coldes, by so much sparing the Mulberries: for the succoring of which, besides, you shall cause to bee throwne to the connies, the outcasts of your garden, hay, cuttings of Vines, and other druggeries in winter, then when the snowes constraines these cattell to goe to the trees, for want of other foode. Yet for the fifth commoditie, I will adde here, that the leaues of Mulberries, in what place soeuer they bee planted, falling of themselues to the ground in the end of summer, put together in some separated loft, taken from thence day by day, and giuen boyled to swine, keepes them in good state, beginning to put them into flesh: the which comes to them, when in ensuing, there fals a good mast, whereby they grow to the superlatiue degree of fatnesse.

I would couch here for the sixth commodity the Mulberries fruite of these trees, so much loued of poultrie, for their exceeding sweetnesse, if the gathering of the Mulberrie leafe for the Wormes, were not the meanes for vs to make profit: the which

puld from the trees with the leaues, yet Greene, long before their maturitie, remaine nothing worth, whereby no certaine account can be made.

All the which things, bringesto light the worth of the Mulberrie, a tree filled with the blessing of God, which in this only plant giues to all sortes of men, and estates, these excellent matters, for to furnish and apparrell the, according to their affections. The soyle proper for the Mulberrie to beare agreeable foode for the Wormes, is that same which the Vine desireth. Wine is healthfull for the Wormes, fortifying, preserving and curing their diseases. And as the Vine beginnes to bring forth good wine, in his fifth or sixt yeere, so in like age the Mulberrie begins to beare leaues, very good to nourish the creature, an obseruation heretofore already marked. Having made these two excellent plants here to march in companie, it shall not be to ill purpose in continuing to represent their sympathies, to say, that the spirit of wine, by distillation, is conuerted into water of life: So the quint-essence of the Mulberrie yeelded in the leafe, is from thence extracted by the Worme, which turnes it into silke, the earthly matter remaining in the wood, of the which, yet the most digested part, yeeldes in the bark, from whence it is taken, as hath been seene. But to enter further into the consideration of such secrets of nature, that would bee to surpassse the limits of my deliberation, which is not to treat in this place but of the barke of the white Mulberrie, for to gather the riches which therein is hidden. So my discour-

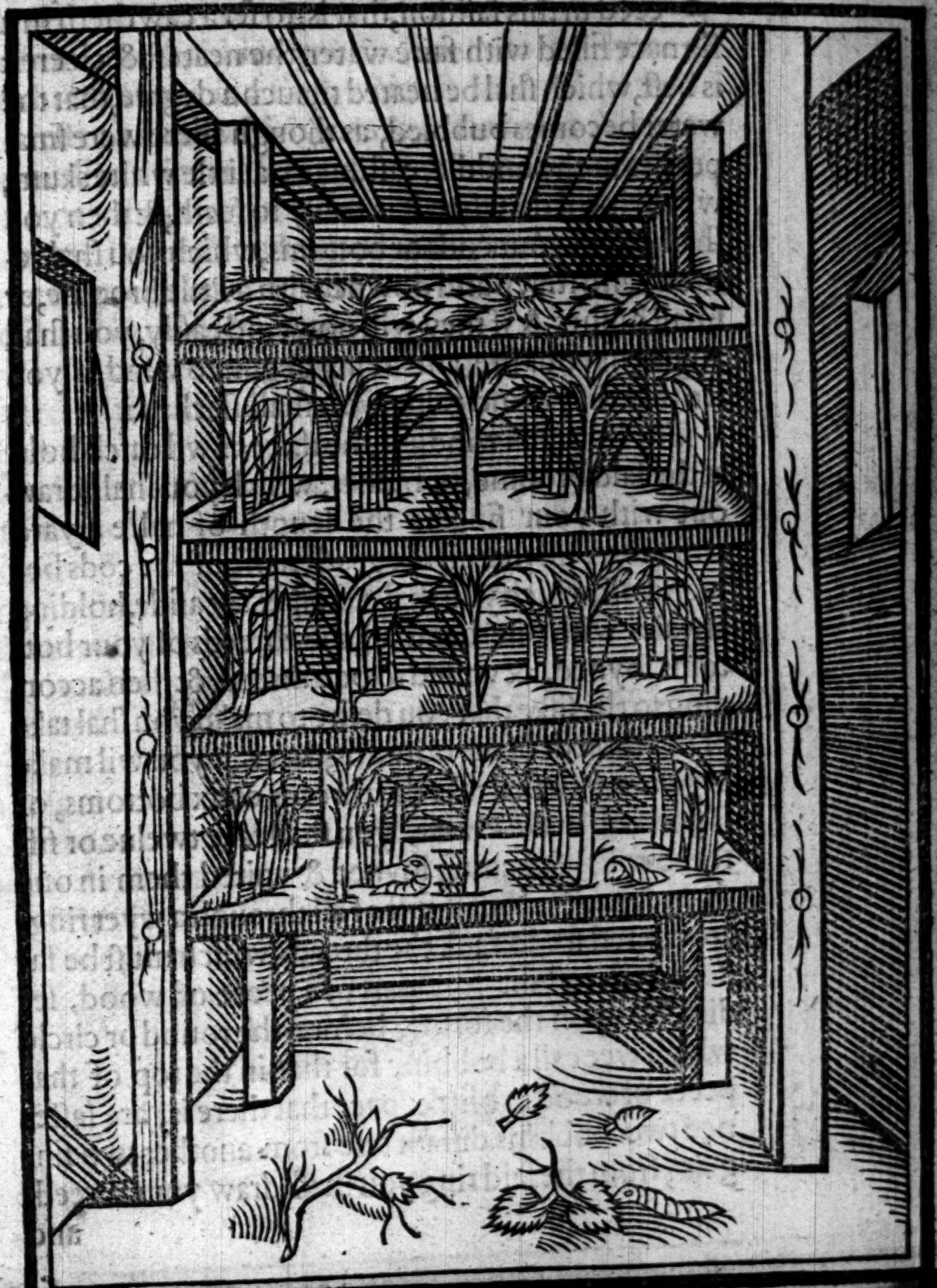
ses not diuing to the Center, shall rest  
themselves at the Superficiall.



By this figure is shewed the order, to ranke the tables on the skaffolds, for  
to lay the leanes on, to feed the Wormes there.



By this figure is shewed the manner to place the rods between the tables,  
for the Wormes to clime vp and spinne their silke.





**T**O wind off the Silke from the cods you shal proceed in this fashion, that is, to set a cawthern in a furnace filled with faire water, the neatest & cleereft is best, which shal be heated til such a degree, that the water becomes bubbled, as though there were smal pearles in the middle, casting vp a little white skum, which it wil do when it is ready to seeth; & then you shal cast in your cods or bottoms, which you shal remoue and stir vp and downe with a little broome, or small bushes; & if they will not wind easily, you shal augment your fire, and being begun to wind, if you see that they wind easily, you shal slacken it.

The bottoms winding, the threeds wil catch hold at the said broome, or bushes, which you shal draw out with your fingers the length of halfe a yard and more, till that all the grossenesse of the cods bee wond off, which you shal cut off & lay aside, holding alwaies with one hand all the threeds of your bottoms ioyned, & vnited to one threed, & then according to the silke that you desire to make, you shal take of the threeds of the bottoms; that is, if you wil make *Organcin*, you shal take the threeds of six bottoms, or if you will make *Verone*, you shal take twelue or fifteene cods, & hauing ioyned & vnited them in one threed, you shal put it first of all through a wyer ring, appointed for to rank the threeds, which must be fastened against the fore-part of a peece of wood, set directly vpon the forme, before the round or circle which wee call a bobbin, for that in the top of that peece of wood in a little space that there is, are fastened two bobbins distant one from another two fingers; from the said ring you shal draw your threed,  
and

and shall crosse it vpon the said bobbins, which are fastened there, to no other end, but to twist the filke, and from the bobbins you shall put thorough the said threed aboue in a ring, which is fastened in the middest of a staffe, which goes to & fro as the Turne goes, called a lincet, set a crosse beneath the wheele, and from that ring you shall draw and fasten the said threed vpon the wheele, which you shal alwaies turne till your skeane of filke be wonde vp. It is represented in this next figure.

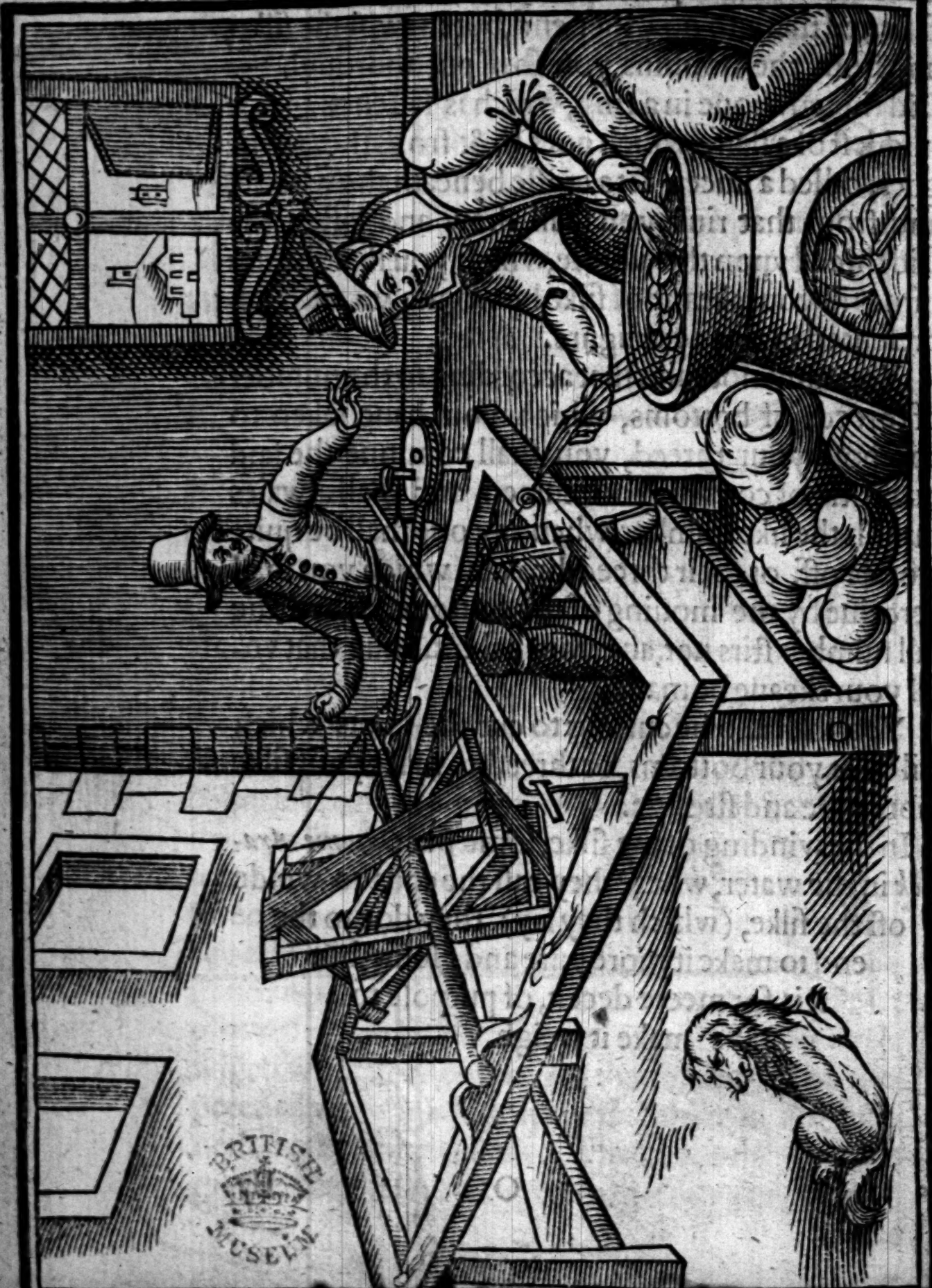
You must note also that according to the number of threeds of bottoms, which you haue taken to compose your threed, you shall continue the said quantitie of cods for your threed, and shall alwaies furnish the like number, when any one shall be quite wonde off, or their threed broken, which you shall perceiue by the mouing of the bottoms, when the full number stirs not, and you shal continue that vntill your skeane be made.

You shall also be curious to cut the knots which wil be at your bottoms, or threed, to make your filke more pure and stronge.

In the winding of the filke, some put *Gumme Arabick* in the water, where they cast the cods to winde off the filke, (which they say) they doe to the end to make it more pure and glossie; but it is for meere deceit, of purpose to make it weigh.



By this figure is shewed the fashion of the Engine, how to wind off the filke from the cods, with the furnaces and cawthern for that purpose.

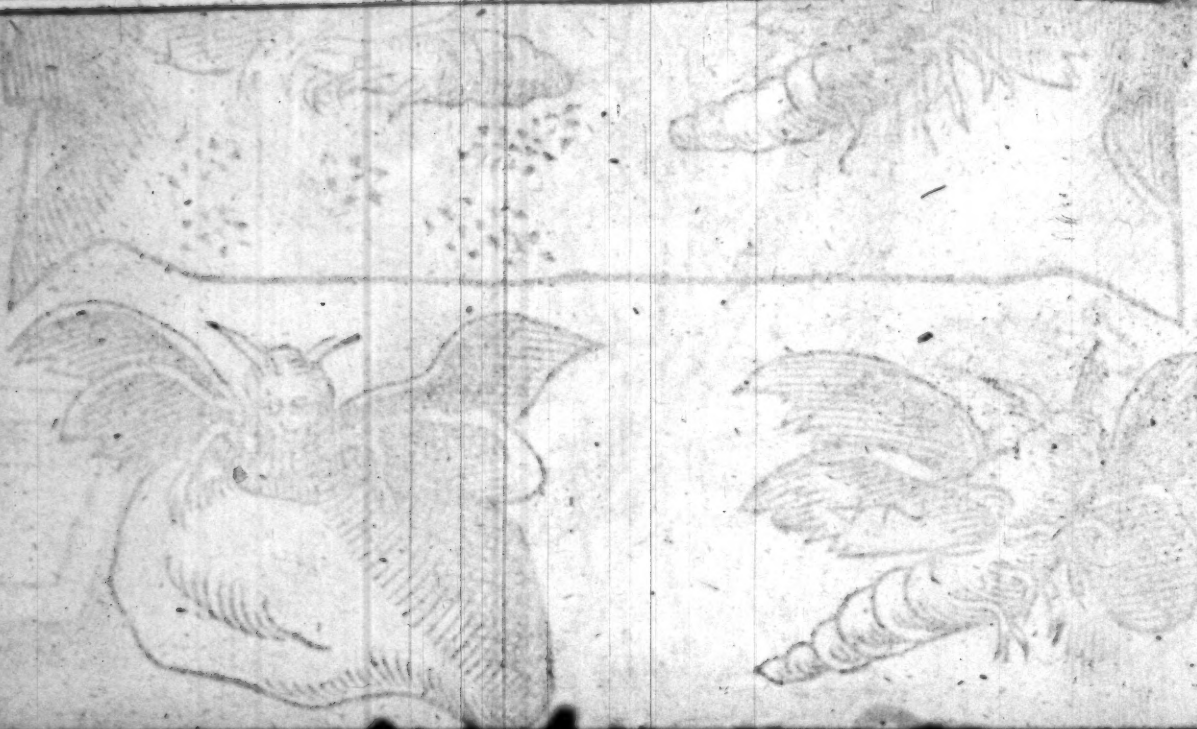


By this figure is shewed the portraits of the cods, and the Butterflies commeth forth of them, to engender and lay their eggs vpon black Serge, Chamblet, Tammeys or such like stufes as hath been said.





for Tanning or other like uses shall be sold.



A

*With the preceding*

DISCOVRSE  
OF HIS OWNE,  
OF THE MEANES AND  
SVFFICIENCIE OF ENGLAND,  
for to haue abundance of fine silke, by fee-  
ding of Silke-wormes within the same; as by  
apparent proofes by him made and conti-  
nued appeareth. For the generall vse  
*and vniuersall benefit of all those  
his Countrie-men which  
embrace it.*



*Pro patria pario.*